

**The Effects of First-Year Residence Hall Roommate Assignment Policy on Interactional
Diversity and Perceptions of the Campus Environment**

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Abstract

A heterogeneous student body is valued in part because diverse interactions among students help create educated and competent citizens and promote learning and development. Campus housing is a primary setting for diverse interactions as students navigate living with individuals who differ from themselves. This study investigated how the roommate assignment process influences interactional diversity and perceptions of the campus environment for first-year students living on campus, and if these relationships differ by race/ethnicity and national origin. On average, students whose roommates were assigned by the institution (as opposed to choosing their own roommates) did not interact with diverse others more often. At the same time, however, Asian, Black and multiracial students who were assigned roommates by the institution perceived a substantially less welcoming campus environment than their same-race peers who chose their roommates. This difference was not observed for White students.

Keywords: Residence life, residence halls, roommates, interactional diversity, campus environment

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Introduction

Diversity has become a core value within the academy, evidenced from mission statements to recruiting materials to the legal battles over affirmative action. A heterogeneous student body is valued in part because it promotes interactional diversity and helps create educated and competent citizens and influences student learning (Antonio et al., 2004; Bowman, 2012; Gurin, Dey, Hurtado, & Gurin, 2002; Sáenz, 2010; Wolfe & Fletcher, 2013). Campus housing is a primary setting where the abstract goal of diverse interactions becomes a concrete reality – often for the first time – as students navigate living with and near individuals who differ from themselves in meaningful ways such as by race, religion, politics, country of origin, and socioeconomic status. Previous research has demonstrated that White students assigned a different-race roommate had more diverse interactions, on average (Camargo, Stinebrickner, & Stinebrickner, 2010; Gaither & Sommers, 2013; Mark & Harris, 2012). In pursuit of these positive outcomes, Duke University recently announced that they would no longer allow first-year students to choose their roommates, expecting that their new students will benefit from more intentional diverse early experiences (Bauer-Wolf, 2018). Duke is not a pioneer in this trend, as New York University, Tufts University, and Colgate University have all implemented similar policies in recent years (Baumann, 2016; Frishberg, 2018; Swalec, 2013; Tufts University, n.d.)

While housing policies vary, many bachelor's degree-granting institutions require living on campus for the first year to provide students more convenient access to campus programming and support services designed for their success. By negotiating this new social environment,

students' residence hall experiences represent a prime way to foster learning and development regarding diversity. However, research indicates that microaggressions are common in social spaces like residence halls, and these interactions often prove deleterious for racial and ethnic minority students (Solórzano, Allen, & Carroll, 2002; Solórzano, Ceja, & Yosso, 2000; Yosso, Smith, Ceja & Solórzano, 2009).

Consequently, this study investigates whether the roommate assignment process influences students' interactional diversity and perceptions of the campus environment for undergraduates attending four-year institutions that offer on-campus housing. Furthermore, we examine if the relationship between being assigned a roommate and these outcomes varies by students' racial/ethnic backgrounds.

Literature Review

Before the 1980s, roommate assignments were mostly random, based on bare minimum preferences such as whether a student was a smoker (smoking was typically allowed in residence halls on a room by room basis). In 1980, an influential study by Hallisey, Harren, and Caple highlighted the influence of roommates in students' choices to move off campus. This work prompted student development personnel to develop better strategies for roommate assignments to help students realize the benefits of living on campus. Room assignment processes attempted to minimize negative roommate interactions by pairing residents with similar preferences (Molina, Heiselt, & Justice, 2015). Hallisey and colleagues (1980) argued that roommate compatibility is a complex topic and that students were in a better position than administrators to identify a good match. Consequently, in recent decades most students have been able to choose their roommates. For those who did not choose a roommate, many institutions made assignments based on student preferences like sleeping schedules and tolerance for noise.

In recent years, the rise of social media and online roommate-matching sites have once again changed how students find roommates (Conley, 2011; Li-A-Ping, n.d.; Ward, 2008; Washington Post Editors, 2010), and the proportion of incoming students choosing a preferred roommate has increased (Bauer-Wolf, 2018). Today's digital native students use the internet to meet other matriculating students from beyond their high school or hometown. Using social media like Facebook or dedicated roommate-matching sites like Roomsurf.com, prospective on-campus residents can search for a suitable match (Conley, 2011; Li-A-Ping, n.d.; Washington Post Editors, 2010). This trend has some institutions worried about the impact on first-year growth and development, as students often select roommates who are like themselves. For example, Duke University recently decided to reverse course on the roommate-matching trend and require all first-year students to be assigned roommates by the university (Bauer-Wolf, 2018). As their vice president for student affairs explained, "We're being very deliberate about the kind of first-year experience that we think would best suit our students — an experience that really is about engaging with difference and opening their eyes to opportunities, and meeting entirely different people than the ones they grew up with or went to high school with. We just thought that [randomly selected roommates] would be a better approach" (Simon, 2018, para. 10).

Previous studies investigating the influence of a roommate's race have found mostly positive results, especially for White students. Camargo, Stinebrickner, and Stinebrickner (2010) found that randomly assigned roommates of different races were just as likely to become friends as randomly assigned roommates of the same race. In other words, race did not seem to be a factor in the likelihood of roommates becoming friends. Additionally, they found that White students who were assigned Black roommates had more Black friends when compared to their

White peers who were assigned White roommates, demonstrating an increase in interactional diversity. More recently, Gaither and Sommers (2013) confirmed positive benefits for White students who were assigned an other-race roommate, including having a more diverse friend group and an increased belief that diversity was important when compared to White students with White roommates. However, an important caveat of these studies is that how an out-group friendship is measured influences its relationship with outcomes like intergroup attitudes (Davies, Tropp, Aron, Pettigrew, & Wright, 2011). In particular, behavioral engagement with an out-group friend appears to be particularly impactful; thus, the quality of the relationship with a roommate is critical to improving outcomes. Therefore, the finding that White roommate pairs have reported greater relationship satisfaction than African American and White pairs may indicate that inter-race roommate pairings may not be the optimal way to promote diverse friendships (Phelps et al., 1998).

Professional associations in higher education, such as the Council for the Advancement of Standards in Higher Education (CAS) and the Association of College and University Housing Officers–International (ACUHO-I), have developed diversity-related recommendations, competencies, and standards to guide residence life and housing personnel. Their guidelines outline the educational benefits of diverse spaces, but also emphasize the ethical imperative to work toward more just and inclusionary practices. For example, ACUHO-I states that effective residence life and housing professionals will understand how “individuals exist in cultural groups of difference, and the concepts of power, oppression and social justice” (ACUHO-I, 2018, para. 10). The professional standards and guidelines should inform all levels of practice—interactions with students, programming curriculum, and policy development.

While policies like random roommate assignment may be well-intentioned, previous research indicates that the effects of interactional diversity vary by student characteristics (Bowman, 2010; Gurin, Nagda, & Lopez, 2004). For example, the benefits of diversity courses were found to vary by wealth and race, with wealthier and White students experiencing greater gains in psychological well-being, comfort with differences, and relativistic appreciation when taking two or more diversity courses (Bowman, 2010). Such studies caution those implementing new diversity-related policies to consider the equity of impact on diverse groups, whether intended or inadvertent. Indeed, a number of meta-analyses have investigated the variability of outcomes from educational practices, policies, and other experiences for diverse groups, with the understanding that even the most thoughtful interventions may not be experienced by all students the same way and could vary as a function of identity or background (e.g., Bowman, 2011; Davies et al., 2011; Mayhew et al., 2016; Pettigrew & Tropp, 2006).

Other research suggests that microaggressions are frequent in social spaces like residence halls, where diverse interactions may harm racial and ethnic minority groups (e.g., Solórzano, Allen, & Carroll, 2002; Solórzano, Ceja, & Yosso, 2000; Yosso, Smith, Ceja & Solórzano, 2009). A study conducted at selective universities identified racial microaggressions that Latina/o students faced, including interpersonal microaggressions (verbal and nonverbal racial affronts) and racial jokes, which led participants to feel as if they did not belong at the institution (Yosso, Smith, Ceja & Solórzano, 2009). What led to success for these students was not integration, but instead it was the creation of safe *counterspaces* that embraced their cultural norms rather than questioning them or mocking them. The rise in counterspaces highlights the need for racial and ethnic groups to share areas distinct from the dominant culture. Yet, policies

restricting roommate choice can prevent residence hall rooms from being truly safe spaces (Solórzano, Allen, & Carroll, 2002).

The extant literature suggests that while interactional diversity in college is associated with positive outcomes, institutional decision-makers need to assess whether different types of students benefit and to what degree. If diversity initiatives primarily benefit historically privileged groups, especially at the expense of minority racial and ethnic groups, creative and informed action should be taken toward more socially just policy and practice.

Theory

Our study draws upon two theories for guidance. The first is social structure theory which helps us understand the effect of roommate matching on interactional diversity. The second, Museus' culturally engaging campus environments (CECE) model, addresses how students' perceptions of the campus environment affect sense of belonging as it relates to cultural drivers.

Social structure theory suggests that individuals are more likely to interact when three conditions are present: homophily, proximity, and transitivity (Mark & Harris, 2012). *Homophily* means that people connect socially with others who are like themselves in terms of a given characteristic such as age, income, race/ethnicity, and education (Blau, 1977). *Proximity* means that people are more likely to connect socially with others who are nearby and accessible, such as by neighborhood, school, or work location, thus making it more likely that people encounter each other (Festinger, Schachter, & Back, 1950). *Transitivity* is a principle in friendship networks that means that individuals are likely to hang out with the friends of those with whom they are already friends (Holland & Lienhardt, 1972). In other words, if person A and person B are friends, and persons B and C are friends, then person A is more likely to connect socially with person C.

Applying these principles to the current study, we assumed that roommates who were friends before they chose to live together – including those who met through social media applications – are likely to share more characteristics in common (homophily). In contrast, we also assumed institution-assigned roommates were likely to share fewer characteristics in common, except for matched preferences like sleep habits and cleanliness. Next, students who shared living quarters, of course, had the advantage of proximity and were therefore likely to engage in additional social connections outside of the room, such as going out for meals, social activities, and other campus events (proximity). Finally, students are also assumed to connect socially with the friends of their roommates (transitivity). Because those friends are likely to possess similar characteristics with the roommate (homophily), the student will have more opportunities to socialize with others from different backgrounds when the roommate is of a different race or income status. Therefore, social structure theory guides us to expect that roommates who were matched by the institution would have more frequent interactions with diversity, on average.

Additionally, there is a need to understand the factors that influence a students' sense of belonging as it relates to the cultural setting. Student perceptions of the campus climate are related to the ways they experience sense of belonging (Museus, Yi, & Saelua, 2017). For example, Hurtado and Carter (1997) found that when Latino students perceived a more hostile campus climate their sense of belonging decreased. Similarly, when Filipino American students experienced pressure to disconnect from their cultural community and assimilate to the campus culture, they felt a lower sense of belonging (Museus & Maramba, 2011). The CECE model theorizes that when a student has access to a culturally engaging campus environment, they experience a greater sense of belonging and other positive outcomes (Museus, 2014). In the

CECE model, there are nine indicators of a culturally engaging campus environment: cultural familiarity, culturally relevant knowledge, cultural community service, meaningful cross-cultural engagement, collectivist cultural orientations, culturally validating environments, humanized educational environments, proactive philosophies, and availability of holistic support (Museus, 2014). Although all nine indicators within the CECE model positively influence students' sense of belonging, there are some that are particularly relevant to this study. First, cultural familiarity exists when students can interact with others on campus (e.g., peers, faculty) who understand their cultural background. Second, meaningful cross-cultural engagement reflects the extent to which students can “engage in positive and purposeful interactions with peers from disparate cultural origins” (Museus, 2014, p. 211). An important element of this indicator is that these interactions are meaningful; simply having interactions with students who are different from themselves is not enough if these interactions result in microaggressions, exclusion, etc.

Finally, it's possible to consider social structure theory in relation to the CECE model. For example, while the concepts of homophily, proximity, and transitivity apply to all groups, *the salience of each may differ across groups*. Minoritized students may be more likely to seek out friendships that emphasize cultural familiarity and culturally validating environments, making homophily more critical to their friendship decisions than proximity. In contrast, for a student who identifies with the dominant culture of an institution, friendship decisions may be more driven by proximity and transitivity to ease their transition into an institution or find friends with similar interests.

Research Questions

Guided by the theory above, we investigated the following research questions:

1. How does the method of roommate selection influence first-year students' interactional diversity and perceptions of the college environment?
2. Does the relationship between the method of roommate selection and these outcomes vary by race/ethnicity and national origin?

Applying the aforementioned theories to our research questions, due to homophily, we would expect that students who choose their own roommates would be more likely to live with someone familiar with their culture than if the student was matched by their institution at random or based on basic preferences like smoking habits and sleeping patterns. Social structure theory's concepts of proximity and transitivity predict that students who did not choose their roommates would have more meaningful opportunities for cross-cultural engagement, as they would be more likely to live with someone with a different background. However, many of the indicators in the CECE model like cultural relevance and cultural familiarity posit that students, particularly those from minority racial/ethnic groups, will experience cultural dissonance and a lower sense of belonging if placed in environments or living situations different from their cultural community. Consequently, we expect that racial/ethnic minority students will perceive a greater quality of interactions and a more supportive environment if they choose their roommate (with the underlying assumption that students will choose a roommate like themselves due to homophily). However, the magnitude of these differences may differ by minority group due to the degree to which students' cultural community diverges from the culture of their institutions.

Methods

Data

We utilized data from the 2018 administration of the National Survey of Student Engagement (NSSE), a large multi-institution study that examines the engagement of bachelor's

degree-seeking students in effective educational activities, perceptions of the campus environment, and other topics associated with their learning and development. Specifically, our data come from 76 institutions that participated in a study investigating how student living conditions influence student outcomes. Students responded to the main NSSE instrument and a supplemental questionnaire about housing experiences in the spring semester/quarter. Our sampling procedure occurred within schools and utilized either a census approach or random selection. Due to our focus on roommate selection, we narrowed the sample to 14,401 first-year students who reported that they lived on campus with at least one roommate. The response rate for the first-year sample from the housing study (including students who lived off campus) was 22.4%.

Seventy percent of the respondent sample was female. White students comprised 61% of respondents, African Americans were 12%, Latinx were 6%, Asian and Pacific Islanders were 5%, multi-racial students were 9%, international students made up 5%, and less than one percent were grouped in an 'other' category (0.3% American Indian or Alaska Native, 0.6% "Other" or "I prefer not to respond"). Slightly more than a third of the sample was first-generation, nearly all were enrolled full time, and the average age was 18.4 years. A majority of respondents attended public institutions, with slightly less than half at doctoral universities, about a quarter at master's-granting institutions, and 13% at baccalaureate colleges. One in twenty students attended an institution rated less competitive, 62% attended institutions rated competitive, 19% were enrolled at institutions rated very competitive, and the remaining proportion attended institutions rated highly to most competitive.

Three NSSE Engagement Indicators served as dependent variables: *Discussions with Diverse Others*, *Supportive Environment*, and *Quality of Interactions* (see Appendix A for the

component item wordings). Discussions with Diverse Others measures interactional diversity, the espoused purpose of roommate-matching policies, and represents how often students had substantial interactions with individuals from different backgrounds or with different views. Questions in this indicator ask how often students had discussions with people who differed from themselves in terms of race or ethnicity, economic background, religious beliefs, and political views. The Supportive Environment indicator summarizes how much the institution emphasizes services and activities that support student success in a variety of areas, including academics, learning support, diversity, social opportunities, overall well-being, non-academic responsibilities, and attending campus activities and events that address important issues. The Quality of Interactions indicator is built on the notion that supportive and positive relationships with key agents of socialization on campus can promote student learning and success. Questions in this indicator ask students to rate (on a 7-point scale from poor to excellent) their interactions with other students, academic advisors, faculty, student services staff, and other administrative staff and offices. The Quality of Interactions and Supportive Environment dependent variables measure student perceptions of the campus environment, sense of belonging, and positive intercultural interactions, key facets of the CECE model. Information on the reliability and validity of these scales can be found in NSSE's (n.d.) online psychometric portfolio. However, the Cronbach's alphas for our analytic sample were .84, .79, and .87 for Discussions with Diverse Others, Quality of Interactions, and Supportive Environment, respectively. While Engagement Indicators are scored by NSSE on a scale from 0 to 60, we standardized these variables with a mean of 0 and a standard deviation of 1 to efficiently compute effect size estimates.

Our key independent variable was taken from a question about how the students found or were matched with their roommates. This item was worded as follows: “*Which of the following best describes how you became roommates or housemates?*” Students were able to choose from among five response options: (a) *Matched after creating an electronic housing profile*; (b) *Assigned by the housing office or property owner*; (c) *Planned with friend(s)*; (d) *Found through social media*; and (e) *Found through an advertisement, Craigslist, etc.* After viewing the frequencies, we collapsed the response options into two categories: (a) students who were matched by their school (matched after creating a profile or assigned by the housing office), and (b) students who were not matched by their school (planned with friends, or found through social media or advertisement). This item allows the ability to examine if proximity influences interactional diversity, assuming that students who are matched with a roommate are more likely to be matched to someone with differing characteristics. Alternately, it allows for the ability to test if homophily is important to perceptions of the campus environment.

Our second key independent variable was the students’ race/ethnicity and national origin provided by students (and imputed using institution-reported data if missing). Response frequencies made possible the following groups for analysis: Asian, Black, International, Latinx, Multiracial, White, and Other (including American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Other, and Unknown). We chose to treat international students as a distinct group due to their shared transition experiences to college, including language and culture issues that are not felt by most domestic students in roommate situations. To control for confounding variables, we also utilized data on students’ sex, major field, estimated GPA, transfer status, educational aspiration, first-generation status, age, intercollegiate athletics participation, enrollment status (full- or part-time), and building type (traditional residence hall,

suite, or other). These variables were either collected on the NSSE instruments or reported by their institution. Additionally, we included the following institutional characteristics to control for school-level effects: Basic 2015 Carnegie Classification (aggregated), undergraduate enrollment size, institutional control, and the percentage of undergraduates who were not White. We included these variables in our multivariate analyses based on pre-existing research and data availability.

Analyses

We began our analyses by examining the frequency with which students chose or were assigned their roommates and the cross-tabulations between roommate selection and race and national origin. We then computed *t*-tests to compare the group means for our three dependent variables by roommate selection method.

Next, we fitted a multivariate model using ordinary least squares (OLS) regression that examined the main effect of being assigned a roommate by the institution, controlling for the student and institution characteristics previously described. We chose to use OLS despite the nesting of students within institutions because the intraclass correlation coefficients were low (< .03); however, we utilized robust standard errors to account for the independence assumption violation.

Finally, we estimated an additional model for each dependent variable that included interaction terms between roommate match and race/ethnicity and national origin. The interaction terms allowed us to examine if the relationship between roommate selection and the dependent variable varied by race/ethnicity and national origin. For each model, we computed the predicted value for each group (matched status crossed with race/national origin) when other characteristics were held at the sample mean to observe how the relationships differed. We then

compared the predicted values to the average student for the overall sample and predicted values between students of the same race/ethnicity and national origin who did and did not choose their roommate. We chose to focus on the predicted values for two reasons: (a) the linear combination of estimates is key to understanding how groups differ when interaction effects are used; (b) the key comparisons in this portion of our analysis were the differences within a race/ethnicity/national origin category, not the differences between White students and those from a different group. For these post-*hoc* analyses, we used the *margins* and *lincom* commands in Stata 15 to obtain the group specific results.

Because large sample sizes as used in this study often lead to statistically significant findings that are trivial in magnitude, we examined standardized mean differences, analogous to effect sizes, in our interpretation of results. This includes both the mean differences between standardized scores in the bivariate comparisons (*t*-tests) and the regression coefficients. NSSE researchers recommend interpreting standardized mean differences on the Engagement Indicators as follows: *small* effects are ≥ 0.1 , *medium* effects are ≥ 0.3 , and *large* effects are ≥ 0.5 . A statistically significant result with an effect size < 0.1 may be inconsequential or trivial (Rocconi & Gonyea, 2018). For the overall and White samples, we used a significance threshold of $p < .05$. As the sample sizes for the other racial/ethnic groups were substantially smaller (the total *N*s ranged from 676 to 1,459, with the *N*s for the race/national origin and roommate match method subgroups ranging from 126 to 1,105), we used a significance threshold of $p < .10$ for these groups. In keeping with recommendations of the statistical and psychological communities to avoid an overreliance on *p* values, we chose to relax the significance testing critical value for the smaller populations, as the effect size is a more appropriate measure of the practical or clinical magnitude of the findings (Cohen, 1965; Kline, 2004; Thompson, 1996; Wasserstein &

Lazar; Wilkinson & The Task Force on Statistical Inference, 1999). We also did not report results specific to the “Other” racial/ethnic group as it had a total sample size of 120 and the estimates for this subgroup had high standard errors and large confidence intervals.

Limitations

Our study is subject to a few limitations that should be taken into account while reviewing its results. First, our results are correlational, not causal, as causal research would require entirely randomized roommate assignments, which was not a feasible option. Second, our sample contains a set of institutions that chose to administer NSSE and participate in the living arrangements study. While care was taken to ensure that they broadly represented the population of institutions with on-campus housing, they may not be representative of the intended population in unobservable ways. Furthermore, our results should only be generalized to four-year institutions that offer on-campus housing, not all four-year institutions. Third, our study focused on students’ race/ethnicity/national origin and interactional diversity, but other forms of diversity including religious, political, and economic (not captured on NSSE) are important to student learning outcomes. We encourage future studies to focus on these forms of diversity. Previous studies on roommates have examined the race/ethnicity of each individual in roommate pairings (e.g., Mark & Harris, 2012). Therefore, our results are not directly comparable. We intentionally deviated from this historical line of inquiry to focus on how a policy like prohibiting students from choosing their roommate is related to outcomes. No national data exist on the percentage of institutions that allow first-year students to choose their roommates. The ACUHO-I Campus Housing Index collects data on how institutions match students who do not choose their roommates. For the institutions in our sample, 68% utilized student questionnaires, 25% used student profiles, 5% did not use a questionnaire or profile, and 1% used another

method. The most commonly used criteria to match students was personal habits like sleep, cleanliness, and study habits (91%). Other frequently used factors included smoking (83%), hobbies or interests (54%), major (53%), and alcohol (37%). Finally, this analysis was a secondary analysis of pre-existing data. We were unable to control for experiences like intergroup relations and diversity courses, which have previously been found to influence diverse interactions (Bowman, 2010; Pike & Kuh, 2006; Zúñiga, Nagda, Chesler, & Cytron-Walker, 2007). The inclusion of such variables may have altered our results.

Results

About two-thirds of our sample (66%) received their roommate through a matching procedure operated by their institution. However, this proportion varied by race/ethnicity and national origin (see Table 1). White students (60%) were less likely to be matched by their institution than the average student. In contrast, about 75% of Asian, Black, and Latinx students were matched by their institution, and the proportion for international students was even higher at 82%.

[INSERT TABLE 1 ABOUT HERE]

Using a two-group *t*-test, we found no significant difference in Discussions with Diverse Others (our proxy for interactional diversity) between students who were matched by their institution ($M=0.02$, $SD=0.98$) and those who chose to live with a friend or someone they met on social media ($M=-0.01$, $SD=1.01$; $t(12,942)=1.85$, $p=.063$). However, students who were matched by their institution ($M=-0.02$, $SD=1.00$) perceived a less supportive environment than their peers who lived with a friend or someone they found through social media ($M=0.06$, $SD=1.00$; $t(12,991)=-4.62$, $p < .001$). Similarly, students who were matched by their institution ($M=-0.02$, $SD=1.00$) rated the quality of their interactions less positively than students who

lived with friends or someone they found through social media ($M=0.05$, $SD=0.99$; $t(12,744)=-3.63$, $p < .001$).

In our multivariate analyses, choosing your roommate was not related to having discussions with diverse others, $b = -0.02$, $t(12,373)=-0.82$ $p=.413$, after holding other factors constant. However, choosing your roommate was positively correlated, $b = 0.05$, $t(12,429)=2.80$, $p=.005$, with perceiving a supportive environment. The relationship between choosing your roommate and quality of interactions, $b = 0.00$, $t(12,185)=0.05$, $p=.958$, was not significant after controlling for other variables. The results for the other control variables are shown in Appendix B.

Next, we replicated the regression models but included interaction terms between the method of roommate selection and race/ethnicity/national origin. Table 2 contains the *predicted values for the dependent variables* by roommate match status and race/national origin when other covariates were held at their mean. The first two estimates in each panel show the predicted mean for the group, (our dependent variable was standardized with a mean of 0 and SD of 1). The third estimate (Δ) in each panel compares the predicted means within the racial/ethnic/national origin group. The latter term shows the *race/ethnicity/national origin specific effect* of being matched with a roommate by your institution.

[INSERT TABLE 2 ABOUT HERE]

For Discussions with Diverse Others, the differences within the racial/ethnic/national origin categories were not statistically different at $p < .05$ for White students nor at $p < .10$ for the other racial groups. The difference in means for Supportive Environment between Black students who were and were not matched by their institution was significant (0.17 SDs). The difference (0.12 SDs) between multiracial students who did and did not choose their roommates

was also significant. We did not observe any significant differences within the other subgroups on our Supportive Environment measure. For Quality of Interactions, the difference in ratings between Asian students who did and did not choose their roommate was significant (0.18 SDs). The difference between Black students who did and did not choose their roommate was significant (0.15 SDs). No significant differences were observed within a racial/ethnic/national origin group on Quality of Interactions for White, Latinx, multi-racial, or international students.

Discussion

Our changing technological landscape has altered how students become roommates (Conley, 2011; Li-A-Ping, n.d.; Ward, 2008; Washington Post Editors, 2010). In the past, students were limited to knowing just a fraction of their peers in their incoming class. Today, social media and other websites allow students to meet a substantial proportion of their peers before matriculating to college, and more first-year students are choosing their roommates (Bauer-Wolf, 2018). This change has concerned some residence life professionals as students are likely to choose a roommate like themselves, which limit students' likelihood of interacting with peer students from different backgrounds and inhibiting their learning (Simon, 2018). Furthermore, this new trend may reinforce inequality on campus, as students who have the capital to pick their roommate from the emerging platforms are likely also to have the cultural capital associated with efficiently navigating institutional policies.

Consequently, some institutions have decided to prevent their incoming students from selecting their first-year roommate (Baumann, 2016; Wong, 2019). This policy has been informed by various lines of research indicating that educational experiences that foster diverse interactions are beneficial to students (e.g., Antonio et al., 2004; Bowman, 2012; Gurin, Dey, Hurtado, & Gurin, 2002; Sáenz, 2010; Wolfe & Fletcher, 2013). Yet, other research has

demonstrated that incidents including microaggressions are common in spaces like residence halls; being subject to such incidents can harm minority students' academic progress and learning through creating a negative campus climate (e.g., Solórzano, Allen, & Carroll, 2002; Solórzano, Ceja, & Yosso, 2000; Yosso, Smith, Ceja & Solórzano, 2009). Additionally, Shook and Fazio (2008) found that roommates were more likely to change their rooming situation (find a new roommate) if the roommate pair were not of the same race. In other words, same-race White and same-race African American roommates were more likely to stay living together than their peers living with someone whose race was different from theirs. The authors concluded that even though institutions have good intentions for diverse actions, positive outcomes should not be assumed. Due to these competing lines of inquiry, we investigated how the method of roommate choice influences interactional diversity and perceptions of the campus environment.

Our results start with an interesting and unexpected finding that White students were much more likely to choose their roommate – as much as 14 to 16 percentage points more than students of color. Several factors could explain this. First, White students were the largest racial/ethnic group in our sample, and 86% of the sample attended predominantly White institutions. They may have had access to more friends and acquaintances from high school or their home community who also enrolled at the institution (Teranishi, & Parker, 2010; Wolniak & Engberg, 2007). It is also possible that White students, on average, have better access and knowledge of resources to find their roommates in advance. This finding could be concerning given Shook and Fazio's (2008) finding that roommates who requested to live together stayed together at higher rates than randomly assigned students.

Results for the Discussions with Diverse Others indicator, our proxy for interactional diversity, suggested that being matched with a roommate did not have a significant relationship

with interactional diversity. We expected students who were matched by their institution to be more engaged in discussions with others who differ from them, but both the *t*-test and multivariate results found no significant differences. This finding may be because our study only examined the roommate relationship without measuring associations with others within proximity in the residence hall or not measuring the quality of the relationship (Davies et al., 2011). The residence hall social environment includes many others living on the same floor or wing with whom they share common spaces such as dining halls, lounges, study areas, and recreation rooms. Diverse interactions can also happen in those places independent of the roommate relationship and are consistent with the social structure notion of *proximity*. Furthermore, meta-analyses of interactional diversity indicate that the quality of the interactions is related to the effectiveness of the experience (Davies et al., 2011). Thus, the concept of *transitivity* may be more important in promoting diverse interactions as it signals the quality of a friendship.

Our multivariate results found a significant, but a trivial association for the method of roommate assignment for the Supportive Environment indicator and a non-significant relationship for Quality of Interactions. However, we found that the relationship between the method of roommate selection and the Supportive Environment and Quality of Interactions indicators varied in substantial ways by race/ethnicity and national origin, after controlling for other factors. The results for White, Latinx, and international students mirrored the overall results. However, we observed significant differences for Asian, Black, and multi-racial students. The most substantial differences from the overall results were for Black students. The effect size difference for Black students who chose their roommate and their peers who were matched by their institution was roughly 0.15 SDs. Thus, Black students who chose their roommate

perceived a healthier campus environment than Black students who did not. We observed the same trend for multiracial students on Supportive Environment, but the magnitude of the difference was 0.12 SDs. Among Asian students, the difference in the Quality of Interactions variable for students who chose their roommate and their same-race peers who did not was 0.18 SDs. However, the difference for the Supportive Environment indicator was non-trivial (0.14 SDs) for Asians but was not statistically significant. These findings suggest that Asian, Black, and multiracial students tend to perceive a healthier campus environment when they choose their roommates, rather than relying on institutional matching. A likely reason for these findings is that rooms occupied by students of the same race act as counterspaces that embrace the norms of their cultural communities (Yosso, Smith, Ceja & Solórzano, 2009). Additionally, these results support Museus' (2014) CECE model, as his concepts of cultural familiarity, culturally relevant knowledge, and culturally validating environments comport with our finding that choosing your own roommate was positively associated with an improved perception of the campus environment.

When our results are viewed in combination, a few themes emerge. First, it appears that an institution-assigned roommate policy would have only a trivial effect on promoting interactional diversity, in contrast to findings that other policies like diversity coursework, intergroup relations experiences, or increasing structural diversity will have a more profound effect on interactional diversity (Bowman, 2010; Pike & Kuh, 2006; Zúñiga, Nagda, Chesler, Cytron-Walker, 2007). In light of our findings, it is important to note that students of color have also been shown to benefit from diversity experiences (Bowman, 2010). A critical distinction between roommate-matching policies designed to promote diverse interactions and more traditional forms like intergroup relations and diversity coursework is that traditional forms are

led by a trained teacher or guide who curate experiences that are designed to minimize negative externalities. If residential life staff seek to encourage diverse interactions, we suggest that they follow the successful model used in academic affairs and ensure their diversity experiences are intentional and facilitated by a trained guide.

Second, students of color who chose their roommates perceived a more supportive campus environment than their same-race peers who were matched by their institutions. Importantly, these differences were of such a magnitude that institutional matching might hinder the educational opportunities of students of color. Thus, while policies like Duke's that prevent students from choosing their roommates are well-intentioned, they may produce unintended consequences that negatively impact the experiences of racial and ethnic minority students. The notion that student affairs professionals must balance competing interests when changing policies is not novel. However, as Chang (2000) has noted, they are particularly fraught when they involve race.

Third, prior research has shown that membership in an ethnic student organization promotes cross-racial interactions (Bowman & Park, 2014; Bowman, Park, Denson, 2015). Thus, counterspaces should be not viewed as a place that solely allow students to withdraw from interacting with others different from themselves. Given the disparate findings between ethnic student organizations and our findings on choosing a roommate, further research should investigate how counterspaces operate and the conditions which promote engagement in effective educational practices.

Implications for Policy and Practice

Our findings have three implications for policy and practice.

1. *Institutions are encouraged to continue policies that allow students to choose their own roommates and to find ways to promote and facilitate this opportunity for students of color.*

The net result of our findings comports with Hallisey, Harren, & Caple's (1980) belief that students are in a better place to choose their roommate than institutions. Consequently, institutions should generally not discourage students from choosing their roommate(s). Our results suggest that students of color may benefit from policies that allow them to choose their roommates, while simultaneously they were less likely to choose their roommates than White students. We were unable to determine the reason for the differential rates of choosing your roommate, but speculate that it could be due to some combination of a lack of feeder school networks from majority-minority high schools, differential rates of engagement in social media groups or websites for incoming students, and the acquisition of cultural capital associated with college knowledge.

2. *Institutions are encouraged to develop and enhance programs for students from underrepresented groups to make social connections early, and to discover safe spaces and counter spaces within the residence halls and on campus in general.*

Institutions should take efforts to connect incoming students with others from their affinity groups before they arrive on campus. Such efforts could include prospective student days or orientation targeted at students of color or have welcoming ceremonies for new students in their home communities. Alternately, institutions or students could create social media groups for incoming student affinity groups. If pre-college interventions are not feasible, another possibility is the creation of special housing for students of color. Such housing could be analogous to gender-neutral housing communities or be designed as themed living-learning

communities. However, this form of special housing should be implemented thoughtfully and frequently assessed to avoid the appearance of segregation and perceptions that students of color are unwelcome on campus.

3. *When considering policy changes, be aware of and take precautions against inadvertent and detrimental effects on students from underrepresented groups.*

Our findings underscore the importance of research and assessment when implementing policy change. Policy changes by Duke and other institutions, an impetus for this study, seems to be informed by the literature on interactional diversity, but not informed by the emerging literature on cultural engaging campuses and counterspaces. Thus, our findings reinforce the need to test out policy changes on small samples to measure both intended and unintended effects and consult various lines of inquiry about a policy. At the same time, our results also highlight that policies may not affect all underrepresented student groups in the same way. In many studies, Latinx students are grouped with Black students under a label of underrepresented minority students. Yet, in the case of our results, Latinx students responded more similarly to White students than Black students. Similarly, Asian students, more commonly grouped with White students, had results more in concert with Black students.

Conclusion

Changes in technology have altered the proportion of first-year students who choose their own roommates (Bauer-Wolf, 2018). Student affairs professionals have become concerned that this change may have deleterious effects on students' interactional diversity, which impacts important student outcomes (Simon, 2018). In this study, we investigated this concern and examined how the method of roommate selection influences perceptions of the campus environment. We found that the concerns over interactional diversity are largely unfounded.

However, our results indicate that the method of roommate selection is a contributing factor in how Asian, Black, and multiracial students perceive the campus environment. Therefore, our findings underscore the importance of evaluating how policy changes influence minority students' experiences.

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Table 1.

Percentage distribution of roommate-matching process by race/ethnicity and national origin

	Matched by institution	Not matched by institution
Asian	76%	24%
Black	76%	24%
Latinx	74%	26%
White	60%	40%
Multiracial	70%	30%
International	82%	18%
Total	66%	34%

Table 2.

Predicted values¹ of discussions with diverse others, supportive environment, and quality of interactions by roommate match status and race

	Discussions w/ Diverse Others			Supportive Environment			Quality of Interactions		
	Matched	Not Matched	Δ	Matched	Not Matched	Δ	Matched	Not Matched	Δ
White	0.06	0.02	0.04 †	-0.02	0.02	-0.04 †	0.04	0.01	0.03
Asian	-0.03	0.11	-0.14	-0.17	-0.03	-0.14	-0.07	0.11	-0.18 †
Black	-0.15	-0.09	-0.06	0.03	0.20	-0.17 *	-0.18	-0.03	-0.15 *
Latinx	0.01	0.04	-0.03	0.15	0.06	0.09	0.12	0.03	0.09
Multiracial	0.09	0.06	0.02	-0.02	0.11	-0.12 †	-0.02	0.06	-0.08
International	-0.20	-0.34	0.14	0.02	0.05	-0.03	0.01	-0.01	-0.00

¹ All other covariates held at their mean

Note: Matched = Roommate assigned by the institution; Not matched = Roommate chosen by the student; Δ = within racial/ethnic/national origin group difference; The dependent variables were standardized with a mean of 0 and standard deviation of 1. The results for the “Other” racial/ethnic category are not shown due to small Ns. See the data section for the list of the control variables, which were held at their mean.

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Appendix A.

NSSE Engagement Indicators Component Items and Reliabilities

Discussions with Diverse Others ($\alpha = .84$)

During the current school year, how often have you had discussions with people from the following groups [Response options: Never, Sometimes, Often, Very Often]:

- People from a race or ethnicity other than your own
- People from an economic background other than your own
- People with religious beliefs other than your own
- People with political views other than your own

Quality of Interactions ($\alpha = .79$)

Indicate the quality of your interactions with the following people at your institution. [Response options: 1 = Poor, 2, 3, 4, 5, 6, 7= Excellent, Not applicable]:

- Students
- Academic advisors
- Faculty
- Student services staff (career services, student activities, housing, etc.)
- Other administrative staff and offices (registrar, financial aid, etc.)

Supportive Environment ($\alpha = .87$)

How much does your institution emphasize the following? [Response options: Very little, Some, Quite a bit, Very much]:

- Providing support to help students succeed academically
- Using learning support services (tutoring services, writing center, etc.)

- Encouraging contact among students from different backgrounds (social, racial/ethnic, religious, etc.)
- Providing opportunities to be involved socially
- Providing support for your overall well-being (recreation, health care, counseling, etc.)
- Helping you manage your non-academic responsibilities (work, family, etc.)
- Attending campus activities and events (performing arts, athletic events, etc.)
- Attending events that address important social, economic, or political issues

Appendix B.

OLS estimates of discussions with diverse others, supportive environment, and quality of interactions.

	Discussions w/ Diverse Others		Supportive Environment		Quality of Interactions	
	Model 1 Coef.	Model 2 Coef.	Model 1 Coef.	Model 2 Coef.	Model 1 Coef.	Model 2 Coef.
Not matched	-0.02	-0.04 †	0.05 **	0.04 †	0.00	-0.03
Race/ethnicity/national origin (White)						
Asian	-0.04	-0.09 *	-0.12 **	-0.15 **	-0.06	-0.11 *
Black	-0.18 ***	-0.21 ***	0.08 *	0.05	-0.17 ***	-0.23 ***
Latinx	-0.03	-0.05	0.14 ***	0.17 ***	0.07 †	0.08 †
Multiracial	0.03	0.03	0.03	0.00	-0.03	-0.06
International	-0.27 ***	-0.26 ***	0.04	0.04	-0.02	-0.04
Other	0.01	-0.13	-0.04	-0.02	-0.18 *	-0.17 †
Not matched X						
Asian		0.18 †		0.10		0.21 *
Black		0.09		0.13 †		0.18 *
Latinx		0.07		-0.13		-0.06
Multiracial		0.02		0.08		0.11
International		-0.11		-0.01		0.03
Other		0.58 **		-0.11		-0.07
Male	0.01	0.01	-0.09 ***	-0.09 ***	0.06 **	0.05 *
First-generation	0.04 *	0.04 *	0.05 **	0.05 **	0.01	0.00
Age (19 or younger)						
20-23	-0.04	-0.03	-0.10 †	-0.11 †	0.06	0.06
24-29	-0.57 †	-0.57 †	-0.44	-0.44	-0.14	-0.14
30-39	0.49	0.48	0.54	0.53	1.17 ***	1.15 ***
Over 55	1.57 ***	1.58 ***	-0.77 ***	-0.73 ***	-1.35 ***	-1.31 ***
Educational aspirations (Bachelor's)						
Some college/Associate's	0.06	0.06	-0.06	-0.06	-0.09 †	-0.09 †
Master's	0.15 ***	0.15 ***	0.08 ***	0.08 ***	0.04 *	0.05 *
Doctoral or prof. degree	0.25 ***	0.25 ***	0.10 ***	0.10 ***	0.06 *	0.06 *
Major Field (Arts & Humanities)						
Biological Sciences	-0.10 **	-0.10 **	0.10 **	0.10 **	0.00	0.00
Physical Sciences	-0.16 ***	-0.16 ***	0.04	0.05	-0.04	-0.03
Social Sciences	-0.08 *	-0.08 *	0.02	0.02	-0.05	-0.05
Business	-0.03	-0.02	0.02	0.02	-0.05	-0.05
Communications	-0.03	-0.02	0.07	0.07	0.13 **	0.13 **

	Discussions w/ Diverse Others		Supportive Environment		Quality of Interactions	
	Model 1 Coef.	Model 2 Coef.	Model 1 Coef.	Model 2 Coef.	Model 1 Coef.	Model 2 Coef.
Education	-0.04	-0.04	0.13 **	0.13 **	0.08 †	0.08 †
Engineering	-0.07	-0.07	0.06	0.06	0.03	0.03
Health Professions	-0.12 **	-0.12 **	0.09 *	0.09 *	0.03	0.03
Social Service Prof.	-0.01	-0.01	0.09 †	0.09 †	-0.01	0.00
All Other	-0.10 †	-0.10 †	0.05	0.06	0.15 **	0.16 **
Undecided, undeclared	-0.24 ***	-0.23 ***	-0.18 **	-0.18 **	-0.26 ***	-0.26 ***
GPA	0.04 *	0.04 *	0.14 ***	0.14 ***	0.18 ***	0.18 ***
Transferred	0.02	0.02	-0.03	-0.03	-0.15 **	-0.15 **
Greek-life	0.04	0.05 †	0.04	0.04	0.03	0.03
Student athlete	0.04	0.04	0.01	0.01	0.03	0.03
Full-time enrollment	0.17	0.16	0.09	0.08	-0.27 *	-0.28 *
Res. hall type (Traditional)						
Suite	0.06 **	0.06 **	0.00	0.00	0.02	0.02
Other	0.05	0.04	-0.04	-0.04	-0.10 *	-0.10 *
Carnegie classification (Doctoral)						
Master's	0.09 **	0.09 **	0.15 ***	0.15 ***	0.14 ***	0.14 ***
Baccalaureate	0.15 ***	0.15 ***	0.24 ***	0.23 ***	0.35 ***	0.35 ***
Private institution	0.08 **	0.08 ***	-0.03	-0.03	-0.03	-0.03
Undergraduate enrollment (1,000s)	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***
% non-White	0.06	0.06	-0.30 ***	-0.30 ***	-0.62 ***	-0.61 ***
Constant	-0.62 ***	-0.61 ***	-0.76 ***	-0.74 ***	-0.28 †	-0.27 †

Note: Standard errors adjusted to account for the clustering of students within institutions

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$