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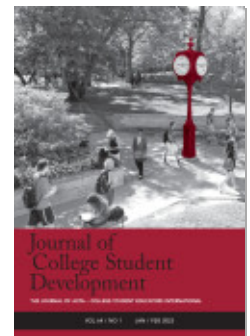
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Racial and Economic Stratification on Campus: The Relationship between Luxury Residence Halls, Race, and Academic Outcomes

Joshua Travis Brown Fred Volk Joseph M. Kush

Residence hall design has remained an important topic for higher education professionals, but recently it has garnered attention from audiences beyond the postsecondary sector, including policymakers, donors, and media. In the competitive realm of enrollment management, luxury residence hall designs that emphasize high-end amenities and private rooms are vital in attracting certain prospective students (McClure, 2019). The design of luxury residence halls has created tension between the ideals of equitable educational experiences and increased competition to attract enrollment, as such facilities are often priced beyond the financial reach of students whose presence is essential to creating a diverse educational experience for all students.

Rather than creating a more diverse environment, residence hall design has been shown to promote racial and economic stratification in living spaces (Foste, 2021). One form of racialized pattern in student housing is homophily, which is the grouping of students by race or class that permits (or limits) opportunities to interact with persons “like me” (McPherson et al., 2001). Yet, interacting with others of a similar race and economic background has

been shown to result in better academic outcomes (Brown et al., 2019). Some researchers found residence hall design played no role in college experiences (Bronkema & Bowman, 2017), while others found isolating designs to be less conducive to flourishing and associated with poorer academic outcomes for Black students when examining Black/White differences (Brown et al., 2019).

As university leaders face pressures to increase enrollment, some have allocated millions of dollars to attracting students using a new type of luxury residence hall design—hybrid luxury—that combines high-end amenities and high socialization design (Cramer, 2021; Eligon, 2013). While hybrid luxury halls emphasize added amenities such as coffee lounges, co-working spaces, and exclusive resident-only fitness studios, they also incorporate certain design elements to strategically increase patterns of student socialization. What remains unknown is (a) how emerging hybrid luxury designs may be associated with academic outcomes and (b) whether student academic outcomes differed in other forms of residence hall designs conditioned on race and homophily

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opportunity. The focus of this work takes up these two questions.

METHOD

Data used in this study were drawn from archival records of a large, predominantly white institution in the Eastern US. We restricted the sample to first-semester undergraduate students and further eliminated NCAA athlete students, international students, or persons 21 years of age or older. This resulted in a sample size retrieved over seven years of 17,640 incoming first-year students. See Table 1 for demographic details of the full sample.

First-semester GPA was the outcome measure for analyses, while covariates included high school GPA (a predictor of first-semester GPA) and estimated family contribution (EFC; a measure of household ability to contribute to college costs calculated from the FAFSA). Three distinct residence hall architectures were examined (i.e., traditional corridor, suite, and hybrid luxury) with a differentiated price range of \$3,400 between the least and most expensive designs. Four racial/ethnic categories were included in the study (i.e., White, Black, Hispanic, and Asian American) and used to calculate homophily opportunity for each residence hall based on the percentage of residents with racial similarities. For example, if a student indicated their race was Black, their calculated homophily opportunity was equivalent to the percentage of Black students in their residence hall.

We used OLS regression to assess two basic models with first-semester academic performance as the outcome. Based on prior research, we included race, residence hall design, and homophily opportunity as our focal predictors (Brown et al., 2019). The two-model approach permits an incremental examination of complex social factors where each model includes controls for high school academic performance and economic status. The first model included two

residence hall designs and controlled for economic status to examine fundamental gaps in the literature. The second model considers three categories of residence hall design to examine how hybrid luxury designs may be associated with academic outcomes and whether academic outcomes differed in other forms of residence hall designs conditioned on race and homophily opportunity. An iterative Markov chain Monte Carlo (MCMC) method was used to impute values for missing data (Enders, 2010).

RESULTS

Model 1: Race and SES

Our first analysis extended the literature by controlling for economic status and including multiple racial groups. Estimated coefficients for both main effects and interaction effects are reported in Table 2. The results found that the three-way interaction of design \times race \times homophily opportunity was significantly, negatively related to GPA for Black students ($\beta = 7.916, p = .008$). Follow-up analyses were conducted to probe the three-way interaction. Following Cohen et al. (2003), we examined the effects of design on GPA at three specific values of homophily opportunity (M , $+1SD$, and $-1SD$). Follow-up analyses revealed no significant differences in first-semester GPA for Black students in residences with the mean homophily opportunity between those in traditional corridor versus suite style. However, at one standard deviation above the mean homophily opportunity, Black students in the traditional corridor design had significantly lower first-semester GPAs than Black students in suite-style ($\beta = -0.54, p = .026$). See Figure 1. The results are counter to our expectations in two ways. First, we expected a higher first-semester GPA for minoritized students in the traditional corridor design but only at higher levels of homophily opportunity (Brown et al., 2019). Second, a significant three-way

Table 1
Descriptive Statistics for Students and Design Type

	Corridor		Suite		Luxury		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Sex								
Males	2,276	30.1	2,674	35.3	2,616	34.6	7,566	45.3
Females	3,226	35.4	2,624	28.8	3,275	35.9	9,125	54.7
Race								
White	3,815	33.1	3,381	29.4	4,318	37.5	11,514	85.7
Black	203	28.4	368	51.5	144	20.1	715	5.3
Hispanic	284	30.5	346	37.2	300	32.3	930	6.9
Asian	87	31.0	94	33.5	100	35.6	281	2.1
Grade Point Average								
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
High School GPA	3.5	0.4	3.4	0.5	3.5	0.4	3.5	0.4
First-Semester GPA	3.2	0.8	3.0	0.9	3.2	0.8	3.1	0.8
Federal EFC	\$33,875	\$70,062	\$29,033	\$65,026	\$53,174	\$99,563	\$42,229	\$85,590

Note. Sample sizes and percentages for Race and Design Style do not total 100% due to missing data. Nonbinary and multiracial student demographics were not made available by the institution.

interaction indicated that Black students in traditional corridor design had lower GPAs with high homophily opportunity than Black students in the suite design. Federal EFC, our measure for household economic status, was positively related to GPA.

Model 2: Three Designs

A second model considered three distinct types of residence hall design while including all main effects and interaction effects estimated in Model 1. Results indicated the main effects for homophily opportunity ($\beta = 0.57, p = .011$) and Black students ($\beta = -3.05, p = .008$), as well as significant two-way interactions for Black students in suite and luxury designs. A three-way interaction of design \times race \times homophily opportunity was also significantly related to GPA. Follow-up analyses probing the three-way interaction revealed that the relationship between residence hall design and first-semester

GPA differed at various levels of homophily for Black students. In residences at low levels ($-1SD$) of homophily opportunity, there were no significant differences in first-semester GPA between Black students in luxury versus corridor design. Yet, at one standard deviation above the mean homophily opportunity, Black students in luxury design had significantly lower first-semester GPAs than Black students in the corridor-style ($\beta = -1.10, p = .037$). See Figure 1. Results indicated that for Black students, one standard deviation below the mean of homophily opportunity, those in suites had significantly lower first-semester GPAs than those in corridor design ($\beta = -0.21, p = .011$). Of the minoritized students included in the analyses, only results for Black students differed from White students. These results are consistent with results in previous work comparing corridor and suite-style residences. However, there was no significant difference in GPA at

Table 2.
Results for Regression Analyses

Variable	Model 1: Race & SES (n = 7,145)		Model 2: Three Designs (n = 13,440)	
	Coefficient	SE	Coefficient	SE
Design (reference: Corridor)				
Suite	-0.006	0.059	-0.006	0.053
Luxury			0.004	0.083
Homophily	0.494	0.252	0.572*	0.211
Race (reference: White)				
Black	-3.555**	1.294	-3.050**	1.014
Asian	-1.914	3.831	-1.007	2.796
Hispanic	0.683	1.208	0.754	1.062
Design × Homophily				
Suite × Homophily	-0.232	0.317	-0.255	0.281
Luxury × Homophily			0.033	0.379
Design × Race				
Suite × Black	3.547**	1.348	2.921**	1.070
Luxury × Black			-5.613*	2.712
Suite × Asian	-0.391	4.365	-0.483	3.402
Luxury × Asian			-6.340	7.483
Suite × Hispanic	-0.346	1.389	-0.079	1.238
Luxury × Hispanic			0.434	2.752
Race × Homophily				
Black × Homophily	-7.967**	2.836	-7.074**	2.239
Asian × Homophily	-4.959	8.097	-3.246	5.932
Hispanic × Homophily	0.950	2.729	1.048	2.402
Design × Race × Homophily				
Suite × Black × Homophily	7.916**	2.986	6.670**	2.391
Suite × Asian × Homophily	-0.670	9.275	-0.558	7.260
Suite × Hispanic × Homophily	-0.227	3.161	0.355	2.821
Luxury × Black × Homophily			-11.966*	5.830
Luxury × Asian × Homophily			-12.983	15.717
Luxury × Hispanic × Homophily			0.938	6.176
High School GPA	0.938***	0.020	0.948***	0.014
Federal EFC	0.005**	0.001	0.003**	0.001

Note. Homophily Opportunity and Hybrid Luxury were shortened to Homophily and Luxury, respectively, to improve table readability.

* $p < .05$. ** $p < .01$. *** $p < .001$.

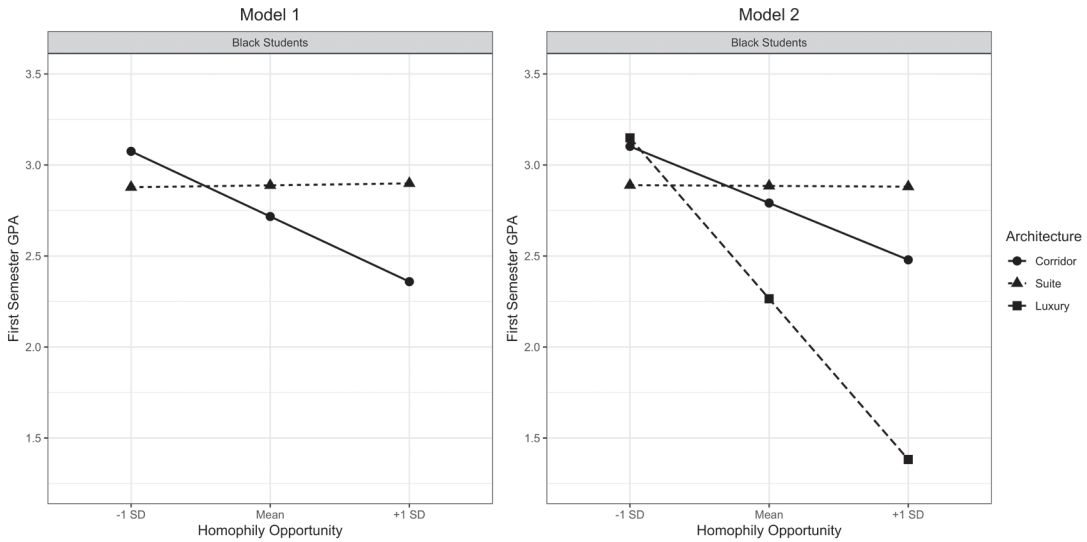


FIGURE 1. Moderation of Black Students x Design x Homophily Opportunity for Model 1 & Model 2

the mean value of homophily opportunity for Black students. Oppositely and consistent with Model 1, for Black students at one standard deviation above the mean of homophily opportunity, those in suites had a significantly higher first-semester GPA than those in the traditional corridor design ($\beta = 0.40, p = .032$). We would expect no difference in academic performance at varying levels of homophily opportunity in the more isolating designs because the opportunity is limited irrespective of hall demographics.

DISCUSSION

This study makes three important contributions to the literature on residence hall design. First, it uses novel data and methods to answer prior calls to examine how socioeconomic status and multiple racial/ethnic groups might change existing knowledge of academic outcomes in luxury residence hall designs (Brown et al., 2019; Foste, 2021). Second, the findings reveal that the relationship between design and first-year student experiences varies by race in that first-year academic success for Black students may be

inadvertently affected by new luxury residence hall designs. Those same relationships did not emerge for other students of color, suggesting a unique experience for Black students relative to first-semester GPA. Third, the findings also shed new light on how different residence hall designs are related to student academic performance. The results suggest student experiences in the new luxury residence hall design may be shaped by broader societal or campus dynamics (demonstrated by the differential student academic performance by race and homophily opportunity). Together these findings suggest that luxury residence halls, irrespective of their designs, may reflect the stratification of broader society rather than create a more vibrant and equitable learning environment for all students.

The differentiated pricing policies institutions employ that charge graduated rates by residence design type may be the policy mechanism sorting students by class and race. Statistics in Table 1 highlight the wide financial variation among students—from a mean household EFC of \$29,033 in the cheaper suite-style to a substantially higher mean of \$53,174

in the more expensive luxury halls. The statistics also highlight differences in the racial grouping, or homophily, of Black students who reported higher proportions in the suite style and lower proportions in the luxury style. Not only do Black students in luxury halls have fewer opportunities to encounter peers of the same race, but all students in the luxury halls have fewer opportunities to encounter their Black peers, potentially negatively influencing their academic outcomes (Brown et al., 2019). While luxury halls attract prospective students, they also introduce stratifying elements in the campus housing experience.

By providing new insights into the interaction between race, racial diversity, design, and academic outcomes, the results of this study suggest several implications for practice and future research. University administrators face tensions between creating a diverse experience for all students and customer-driven preferences for autonomy and amenities in living spaces that drive racial and economic stratification. Residence life professionals can strategically work to “de-stratify” the residential student experience in two primary ways. First, they can change differentiated pricing policies by (a) eliminating them entirely, (b) considerably narrowing the price range, or (c) subsidizing high-end residence halls to diversify the exclusive aspects of the campus housing experience by class and race. Second, residence life professionals can implement equality assessments that aim to identify unequal patterns of distribution in residence halls by race, ethnicity, multiple types of gender, and socioeconomic status. Minimally, equality assessments should query data similar to those in Table 1 but could include other aspects like room changes, historical patterns, and pre/post-policy impact.

Regarding future research, this study points to the need to examine how residence hall design may attract specific types of students to reside in the community, further shaping their academic

success. Research findings on residence hall design and its influence on student outcomes have been variable, and their utility may be localized. Without including the cultural context in interpreting the results, these types of studies offer one piece of the puzzle related to student experiences. Just as this study incorporated two new pieces of the puzzle (i.e., economic status and multiple races), future studies must incorporate additional factors such as roommate assignment processes, room and board fees, social networks, and residence hall proximity in order to understand how institutions may undermine their goal of creating equitable educational experiences for all students amid efforts to address increased competition for enrollment.

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