

Experiences of Students of Color and First-Generation Students

A Case Study of a Living-Learning Community

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EXECUTIVE SUMMARY

At the request of Model University administration, a team of Vanderbilt University EdD students in Higher Education Leadership and Policy investigated the impacts of Model's Residential Community (RC) system on students of color and first-generation students. Utilizing a mixed methods approach including quantitative analyses of institutional survey data (Your First College Year and National Survey of Student Engagement), qualitative interviews with student participants, and a document analysis of publicly available documents about the RC system, the team posed two questions:

1. **What programming and resources are needed via the RC model to support students of color and first-generation students in campus life and academics?**
2. **To what extent do the RC model offerings align with the needs and desired outcomes by Model for students of color and first-generation students?**

The results of the quantitative analyses determined that there are statistically significant differences between students in the target population—students of color and first-generation students—and their White and continuous-generation counterparts. Specifically, students' perceptions of the institutional climate, interactions with peers in study groups, diverse interactions with peers, academic transition, sense of belonging, and self-reported GPA differed significantly between the target population and the comparison group. In each case, the target population was at a disadvantage—perceiving the institutional climate less favorably, thriving less in their academic transition, finding less sense of belonging, and interacting less with their peers in study groups. The one dimension in which the target population had an advantage was the number of diverse interactions (i.e., interactions with people different from themselves) they had.

The results of the qualitative analyses provided important context about the student experience that facilitated the development of research-based recommendations for possibly impactful improvements to strengthen the RC system to support students of color and first-generation students. These recommendations fall within five strategic pillars: 1) Certify RC model vision, goals, and outcomes; 2) Clarify RC roles and responsibilities for faculty and staff; 3) Address barriers to student interactions; 4) Increase faculty engagement with the RCs 5) Create faculty participation incentives for first-year course faculty and faculty affiliates.

PROBLEM

In 2014, Model University began the process of implementing a living learning community (LLC) model for its undergraduates. The so-called Residential Community (RC) system, which was implemented in part to increase student success, engagement, and satisfaction (Registrar, personal communication, June 16, 2021), is currently comprised of four RCs spread across twelve residential buildings for first- and second-year students. First- and second-year students are required to live in the RCs. It also includes a handful of buildings across campus where juniors and seniors, who are still affiliated with their RC, reside in themed housing. Three of the primary goals of the Residential RC mode are to provide students with intellectual and social engagement, a sense of community and connection, and an affinity with their RC and the institution as a whole (Model University, n.d.-c). As Model continues its investment in the RC model, institutional leadership is interested in better understanding how the model aligns with institutional goals—specifically the strategic priority of equitably enriching the student experience across all student populations.

A prior external evaluation of the RC model by a Vanderbilt capstone team in Spring 2021 found evidence of a negative statistical relationship between membership in the RCs and sense of belonging (Huffines et al., 2021). Through an analysis of the Your College First Year (YCFY) survey data from 2016 and 2017 using independent sample t-tests, Huffines et al. (2021) found that first-year students in the RCs have a lower sense of belonging (Coef $-.18$, $p < .05$) as compared to their first-year peers not living in the RCs. Although first-year students in general have a lower sense of belonging, students of color living in RCs and those not living in a RC have similar levels of a sense of belonging per the results of a linear regression analysis.

Given Model University's stated intent to provide community to students who may not be finding it through avenues such as athletics or Greek life (Boyd et al., 2021), university administration wished to further explore the Huffines et al. (2021) finding of a lack of a relationship between RC participation and sense of belonging for students of color. In the proposal process for the current capstone project, Model University administration also noted first-generation students as a population of interest for receiving additional consideration.

PROJECT QUESTIONS

Model University is committed to creating support structures for historically underrepresented students, including an inclusive first-and second-year RC environment for all student populations. Given the findings of Huffines et al. (2021), the strategic priorities of Model University, and the documented importance of sense of belonging on student outcomes, including persistence and satisfaction (see Literature Review in Appendix A), our capstone team is assessing how the RC model serves the needs of students of color and first-generation students as defined in Table 1. Specifically, we explore how the RC model contributes, if at all, to a supportive campus environment and positive student outcomes as measured by elements and practices research shows to be positively associated with student success for those in a living learning community (Brower & Inkelas, 2010; Inkelas et al., 2007; Kuh, 2008; Stassen, 2003). Thus, this capstone project is designed to answer the following questions:

1 What programming and resources are needed via the RC model to support students of color and first-generation students in campus life and academics?

2 To what extent do the RC model offerings align with the needs and desired outcomes by Model for students of color and first-generation students?

Table 1
Definition of Terms

Term	Definition
First-generation student	Students who are the first in their families to obtain a four-year degree
Student of color	Asian, Black/African American, Hispanic/Latino/a/x, and students who identified as more than one race/ethnicity
Target population	The combined total of first-generation students and students of color in the YFCY and NSSE datasets
RCs	Residential Communities – Model has four residential communities: Dogwood, Willow, Chestnut, and Elm
NSSE	National Survey of Student Engagement
YFCY	Your First College Year Survey

NSLLP	National Survey of Living Learning Programs
LLC	Living Learning Community is a program in which undergraduate students living in a residence hall participate in academic and co-curricular activities designed specifically for those students (Inkelas et al., 2007)
Co-curricular programming	Although the line between co- and extra-curricular activities is becoming increasingly unclear, the present study utilizes “co-curricular” to refer to activities outside the classroom that connect to the curriculum (e.g., guest lecturers, ungraded discussion, etc.) or aim to improve skills (e.g., leadership role in a student organization).
Extra-curricular programming	Non-classroom activities that do not directly relate to the curriculum (e.g., participation in student social organizations, attendance at social events, etc.).

ANALYTICAL FRAMEWORK

LIVING LEARNING COMMUNITIES

Based on recent Living Learning Communities (LLCs) scholarship, the team uses the research-based LLC Best Practices Model (Inkelas et al., 2018) to assess the institution’s RC structure and desired outcomes in relation to how these serve students of color and first-generation students. LLCs are programs in which undergraduate students living in a residence hall participate in academic and co-curricular activities designed specifically for those students (Inkelas et al., 2007). LLCs have been categorized by structures and resources into three groups: a) small, limited resources, primarily residential life emphasis; b) medium, moderately resourced, student affairs/academic affairs combination; and c) large, comprehensively resourced, student affairs/academic affairs collaboration (Inkelas et al., 2008). LLCs have also been categorized by programmatic themes into 17 separate foci (Brower & Inkelas, 2010; Inkelas et al., 2007). This wide range of foci differentiates LLCs depending on the institution type, student population, and unique culture and climate of each campus. From these earlier studies, Inkelas et al. (2018) designed the LLC Best Practices Model (BPM).

The BPM model is illustrated as a pyramid in which critical elements at four levels of construction—infrastructure, academic environment, co-curricular environment, and pinnacle—are represented as bricks and scaffolded to create a structure that is held together by assessment, which the authors describe as “mortar between the bricks” (Inkelas et al., 2018, p. 18) The infrastructure is comprised of clear goals and objectives, academic affairs and

residence life/student housing collaboration, and adequate resources. The second level of the pyramid is the academic environment, which is comprised of courses for credit, faculty advisement, academically supportive climate, and a socially supportive climate. The third layer of co-curricular environment includes activities that occur in the living-learning community related to coursework, such as study groups, career workshops, or theme-related activities. These activities can vary based on the range of programmatic themes (Inkelas et al., 2007). The illustration of the model as a pyramid reinforces the idea that elements at each level must be firmly established for higher-level elements to exist with stability. A carefully formed, well-integrated LLC achieves intentional integration of all the lower elements at the pinnacle level. Such a program fully realizes the sum of all its parts. Without integration, however, the individual practices amount to no more than unrelated activities (Inkelas et al., 2018). The sections below discuss the how the team used the BPM model and the LLC literature regarding structural components and outputs to create our analytical framework.

ASSESSMENT FRAMEWORK

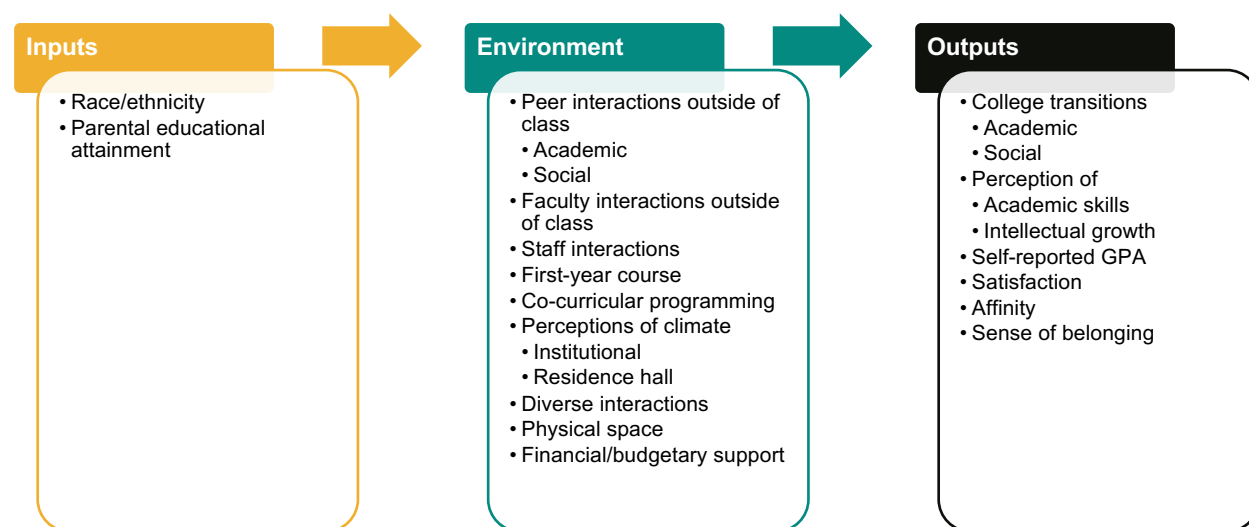
Alexander Astin, whose work on student involvement is one of the central themes of the present study, and Anthony Antonio introduced a conceptual framework called “input-environment-output,” or I-E-O, to guide assessment for improvement in higher education. The I-E-O model accounts for the most critical aspects of student experience that must be understood to adequately assess the impact of programs and policies in higher education and is especially suited for natural experiments (Astin & Antonio, 2012). According to this model, inputs are the individual characteristics, personal and family history, and any other intrinsic qualities that a student possesses. The environment “refers to the student’s actual experiences during the educational program” (Astin & Antonio, 2012, p. 19) and “encompasses everything that happens to a student during the course of an educational program that might conceivably influence the outcomes under consideration” (Astin & Antonio, 2012, p. 87). In this context, outcomes—the skills and abilities an educational intervention is designed to develop or change—are referred to as outputs. Taken together, these three buckets comprise the context for assessing any change effort; they allow the researchers to understand the impact of personal characteristics on students’ response to environmental elements of the program to determine if the desired outputs are being generated.

Understanding what is happening in the environment is what allows the researcher to draw conclusions about the relationship between inputs and outputs and the extent to which it interacts with or moderates inputs. For students attending college, the environment does not

only include aspects of campus life such as physical plant, courses, and programming; it also includes elements over which an institution has little or no control—how students treat each other, what personalities professors bring to their classrooms, or the amenities available in the off-campus community. One crucial aspect of an evaluation using the I-E-O framework, then, is to determine which environmental variables should be considered in the analysis and which must be ignored. In this process of identifying environmental variables, Astin and Antonio note, “nothing in human experience is intrinsically an input, an output, or an environment” (Astin & Antonio, 2012, p. 23). Taking this into account, the I-E-O framework is quite flexible and therefore suited for a variety of assessments. Figure 1 illustrates how the team has conceptualized the present study in an I-E-O framework. Although investigating both environment and outputs, the present study does not aim to correlate specific aspects of the environment with specific outputs. The I-E-O framework is used here only to organize aspects of the environment and outputs.

Figure 1

Research Framework for Model University’s RC System



Sources: Astin & Antonio, 2012; Brower & Inkelas, 2010; Inkelas et al., 2007, 2018

In the present study, the team’s decision to locate aspects of the RCs in either the environment or output buckets was based not only on the existence of those variables in the extant research discussed in the literature review in Appendix A, but also on how each aspect is incorporated into Model’s RCs. For example, “diverse interactions” could exist in the output bucket of a program that aims to encourage students to regularly interact with students who are unlike themselves. In the context of this study, however, diverse interactions are an aspect of the RCs

that Model University hopes will have a positive impact on students' sense of belonging and their social transition. The type and amount of data available to the team via the two surveys described in the Methodology section also guided the application of the I-E-O model to this study.

INPUTS

Due to the nature of the available data and the interest of Model University to learn about the experiences of students of color and first-generation students in the RCs, the team focused primarily on these two input variables while recognizing that other student characteristics, such as socioeconomic status, gender, and athlete status undoubtedly impact how students interact with the environment of the RCs. Student development theory (Abes et al., 2007) and racial and ethnic identity development theories (Phinney & Alipuria, 1990; Pope, 2000; Tatum, 2017; Torres & Baxter-Magolda, 2004) have shown college students from different races/ethnicities have nuanced experiences based on the social identity/ies with which they most identify (Abes et al., 2007), even within racial/ethnic groups (Gallegos & Ferdman, 2012; Torres & Hernandez, 2007). Additionally, race/ethnicity are socially constructed, and experiences of individuals from different racial and ethnic groups are shaped by privilege and power structures in our nation and institutions (Garcia, 2017; Gillborn et al., 2018; Kirkland, 2019; Viano & Baker, 2020). Thus, our team uses an asset-based approach and situates this input variable within the context of the institution, its structures, processes, and environment rather than a precursor to an outcome.

First-generation students often lack the cultural capital that continuous-generation students have based on their parents' or guardians' experiences navigating a higher education environment. While not specific to first-generation students, Sinclair et al. (2016) explore the role of cultural capital and first-year student persistence in residential colleges. After outlining the logic behind the indirect relationship of cultural capital on student persistence presented in *Rethinking College Student Persistence* (Braxton et al., 2014) the authors describe one approach is to encourage social interactions through residential education programming to build the cultural capital of their students. LLCs, thus, are designed to create and maximize these types of interactions for first-generation students. We explore any potential differences in engagement of first-generation students and students of color with the LLC elements included in the Environment bucket.

ENVIRONMENT

The environment is comprised of elements from the Best Practice Model for LLCs established by Inkelas et al. (2018) and previous LLC studies, many of which were reflected in Model University's proposal for the present study, as well as in the initial informational literature the team used to familiarize ourselves with the RC structure. National or multi-institutional studies have found LLC participation is related to greater interactions with peers and faculty members, more positive perceptions of the academic and social residence hall environment, and more positive peer interactions (Inkelas et al., 2007; Mayhew et al., 2016). The 2007 National Survey of Living Learning Programs (NSLLP) identified the LLC practices that are associated with these outcomes, including peer interactions in the forms of study groups, academic discussions with peers, social and cultural discussion with peers, course-related faculty interactions, and academically and socially supportive residence hall climate (Brower & Inkelas, 2010). In a descriptive study of IMPACT: Integrating Moral Principles and Critical Thinking, a learning community at a public mid-western university, Browne and Minnick (2005) also found that the program participants reported working greater to meet faculty expectations, discussing readings in class with peers outside of class and working outside of class with faculty when comparing IMPACT students to non-impact students using the National Survey of Student Engagement (NSSE). Thus, all these elements are included in the Environment bucket.

The team also found it important to include interactions with Student Affairs professionals, especially in relation to the residence hall environment, because the RCs are a collaboration between Academic Affairs and Student Affairs at Model and because studies have found that small LLC programs primarily supported by residential life had positive results for learning outcomes (Inkelas et al., 2008). Priest et al. (2016) found that social connections were the most meaningful elements of LLC participants' experiences, including relationships with other students, faculty, and other instructors involved in the LLC in their study of an LLC at Kansas State University, which included a set of linked courses. "Simply put, to be successful, the experience of community must be emphasized in design and delivery of such programs. Creating the structure of common courses does not automatically foster community; the experience of community is negotiated through social relationships" (Priest et al., 2016, p. 370). Engstrom and Tinto (2008) also describe this social phenomenon beyond structural changes emphasizing the social connections with peers, faculty, and staff engaged in the LLC.

LLC participation showed positive relationships between first-year seminars and key outcomes for academic and social success such as co-curricular engagement and increased satisfaction, engagement, persistence (Finley & Kuh, 2016). Kuh and colleagues have also

concluded that educational activities such as learning communities, first-year seminars, and research with faculty have an especially strong effect on students' personal development and were associated with "deep approaches to learning" (National Survey of Student Engagement, 2007, p. 13). Of particular interest for the present study are first-year seminars and LLCs, a type of learning community described in more detail in Appendix A. With their intentional focus on critical thinking, writing, and collaborative learning, first-year seminars and experiences have a strong impact on strengthening intellectual and practical skills. For example, Conefrey (2021) found that LLC participation for first-generation students combined with a writing seminar among other high-impact practices have a cumulative impact on students' sense of engagement. Comparing an art themed LLC and a random assignment residence hall community, Smith (2018) also found the LLC helped students develop internal social relationships that facilitated additional co-curricular engagement with the larger campus community. Through the qualitative interviews, the author found that students self-selected into the LLC because they were seeking to connect with students who had similar interests. Although participation in the LLC did not show a significant effect on facilitating closer networks of students, the author found that high values of closeness were related to second-semester co-curricular engagement on campus ($b=12.98, p < .05$). Given Model University's interest in learning about students of color and first-generation students, Kuh's research on high-impact practices is especially relevant because NSSE data indicates that "historically underserved students tend to benefit *more* from engaging in educational [sic] purposeful activities than majority students" (Kuh, 2008, p. 17). These findings suggest that while first-year seminars, learning communities, and other high-impact practices benefit all students by engaging them in meaningful educational activities, minoritized populations stand to benefit significantly from participation.

Extant literature suggests that an institution's physical plant, such as building design, mediates the learning experience in an RC. Altimare and Sheridan (2016) document the role of non-classroom spaces in the creation of learning and community in LLCs at Michigan State University. By asking study participants to draw cognitive maps indicating where learning occurs in the RC, the authors learned that non-classroom spaces were perceived by students as central to learning. For example, study rooms ranked almost as highly as classroom spaces in the analysis, with students indicating that shared spaces in the RC, like the gallery and language media center, also significantly contributed to their learning. Space also mediates social interactions in RCs, such as roommate relationships. Blau's (1977) theory of proximity – also utilized by Mark and Harris (2012) in their college roommate analysis, shows that those in proximity, such as neighbors, roommates, and work colleagues, are likely to be friends. Lastly,

Garvey et al. (2020) found that the physical residence hall space is related to sense of belonging for first-generation students. As a result, the team included space as an environmental factor in this analysis.

The final variable in the environment bucket of the framework is financial or budgetary support. Scholars have looked at the relationship between the efficacy of LLCs and the financial support and structures of these programs (Brower & Inkelas, 2010; Inkelas et al., 2008). Using the NSLLP study to examine 300 LLCs at 34 institutions, Inkelas et al. (2008) find that large, comprehensively resourced programs with strong academic and student affairs collaborations as well as small, residential life-based LLCs had stronger self-reported learning outcomes of growth in critical thinking, growth in cognitive complexity, and appreciation for liberal learning. Based on informational interviews, we categorize Model's RC structure as one that is large, comprehensively resourced, and supported by student affairs and academic affairs. Thus, we include financial support for the RCs as a variable to help us understand the experiences of students of color and first-generation students at Model University.

OUTPUTS

The team derived the outputs variables from Model's intended outcomes for their RC structure as described on their research proposal as well as the LLC literature. The first variable is college transition. The literature posited a positive relationship between participation in an LLC and academic and social adjustment to college. Brower and Inkelas (2010) found a greater academic and social adjustment for students who participated in LLCs using NSLLP data. Inkelas and Weisman (2003) also found significant differences in the outcomes related to social and academic adjustment for participation in three LLCs each focused on transitioning to college, supporting high-achievers, or pursuing an academic theme. These outcomes were significant when compared to the control group and outcomes were stronger based on the intended objectives of each of the programs. In other words, the LLC with a focus assisting students transition into the college environment had a stronger positive relationship although the other two LLCs also showed a positive relationship. Additionally, Inkelas et al. (2007) found first generation students' transition to college was aided by an academically and socially supportive residence hall climate and the use of resources available through the residence halls (Inkelas et al., 2007). Using the Thriving Quotient scale, Eidum et al. (2020) similarly found first generation students had a positive correlation ($p < .05$) with academic determination, diverse citizenship, and positive perspective; however, first-generation students exhibited a negative significant correlation with the social connectedness dimension of thriving. Eidum et al. (2020) also found negative significant correlations with academic determination for

Hispanic/Latino/a/x, Asian, and South Asian students, and a significant negative correlation for positive perspective for Asian students. Asian students also had a negative significant total thriving score which can be explained by the negative significant findings for three of the five dimensions of thriving. Native American and Middle Eastern students did not show any significant correlations (Eidum et al., 2020).

Based on the examination of the literature, the benefits of LLC participation on academic student success are mostly positive, and Model University's request also focused on student success as an intended outcome. The team found academic success was operationalized differently in LLC studies. For example, Maltby et al. (2016) found significant long-term effects for LLC students of color and first-generation students in the Women in Science and Engineering Residence Program (WISE RP) at the University of Michigan on their likelihood of receiving an undergraduate degree in a STEM-related field (23 percent higher for first-generation and 31 percent higher for underrepresented minority students, $p < .05$). Mayhew et al. (2016) reviewed national and multi-institutional studies of LLCs and found these programs showed gains in general education. Brower and Inkelas (2010) operationalized academic success as perceptions of critical thinking skills and application of knowledge to new settings, which they found to be among the positive learning outcomes of LLC participation. As previously mentioned, Inkelas et al. (2008) found certain structures of LLC programs had stronger student self-reported learning outcomes for growth in critical thinking, growth in cognitive complexity, and appreciation for liberal learning for students who participated in a program compared to students who do not participate. However, a recent multi-institutional study of LLCs at four institutions (two private and two public) showed significant negative correlations for Asian and South Asian students for engaged learning (Eidum et al., 2020). Finally, Browne and Minnick (2005) reported students in the IMPACT program had high moral reasoning skills as measured by the Defining Issues Test. When compared to their non-LLC peers, IMPACT students scored higher in their critical thinking scores using the Ennis-Weir Critical Thinking Test. Although this finding aligns with other studies, this LLC study is a descriptive study.

While the majority the studies measured intellectual growth, a couple of LLC studies focused on the relationship between students' perceptions of their academic skills and abilities as a measure of academic success. For instance, Conefrey (2021) found an increase of students' self-appraisal of their academic abilities investigating how learning communities and other high-impact practices, such as writing seminars and ePortfolio, affect the experience of first-generation students at a four-year private liberal arts college through a qualitative study.

Students became more confident of their academic abilities and were able to integrate their learning from other courses and co-curricular experiences as part of their ePortfolio. Inkelas et al. (2007) found that students' perceptions of academic skills varied depending on the focus or theme of the LLC and its intended goals. For example, STEM-focused LLCs showed a stronger relationship with students' perceptions of their math ability. Similarly, leadership themed LLCs showed a stronger relationship with working as part of a team, while stronger confidence in test-taking abilities is exhibited by students in LLCs designed for high-achieving (Honors) students. Based on the available data from the two surveys, the team was able to operationalize this dimension of academic success.

Given its prevalence in the literature, the team included self-reported GPA as the third measure of academic success. Anderson and Blankenberger (2020) evaluated a group of three LLCs each designed to improve the academic outcomes of first-generation students, low-income students, and students of color at the same public regional university in the Midwest. Using linear regression, the authors found the interpersonal validation scores for students who participated in the LLCs had a significant positive association with GPA in both the third and sixth semesters when compared to their matched group peers (Standardized $\beta = .11, p < .001$ and Standardized $\beta = .12, p < .001$, respectively). However, the authors found that only the LLC designed for first-generation students was associated with slight positive increase in GPA (Standardized $\beta = .11, p < .01$). Additionally, Purdie and Rosser (2011) utilized institutional data to compare the GPA and retention of students in an academic themed freshman interest group LLC to students in an LLC linked to a first-year experience course at a large Midwestern research-intensive university. After controlling for independent variables, the authors found a statistically significant, yet small increase in GPA (standardized $\beta = .02, p < .01$), and an increase in retention (standardized $\beta = 1.18, p < .05$) for only the LLC designed as a freshman interest group. Finally, Stassen (2003) found a positive significant relationship between first-semester GPA and participation ($p < .05$) in one of three LLC cohorts at a Research I university, irrespective of their missions and structures. Of note, the talent-based and residential LLCs showed stronger effects than the honors program LLC after controlling for entering characteristics.

The team included students' satisfaction and affinity to both the institution and the RC to the outputs bucket based on Model's expressed interest in these variables. The team did not find any LLC studies that measured affinity. However, the team found literature indicating that LLC participation is associated with higher levels of student satisfaction. Frazier and Eighmy (2012) studied three themed LLCs within an upper Midwest university; one community was

themed around wellness and the other two communities were based on academic majors of pharmacy and engineering/architecture. The authors found the two academic-themed programs showed significant positive differences in satisfaction. Specifically, the LLCs significantly differed in “building relations with other students in major” (Pharmacy mean diff. = .839 and Engineering/Architecture mean diff. = 0.905, both at $p < .001$) and having a “positive learning experience” (Pharmacy mean diff. = .369, $p < .003$ and Engineering/Architecture mean diff. = 0.386, both at $p < .005$). Through interviews with faculty, staff, and students, the authors found students’ level of satisfaction were positively related to the level of interaction with faculty and staff built into the design of the program. Therefore, the LLCs with more intentional interactions with faculty and staff showed higher levels of student satisfaction in students’ residence hall experiences.

The team included sense of belonging as the final variable in the outputs bucket at the request of Model University based on the prior EdD capstone team’s findings that Model University students in the RCs had a lower sense of belonging as compared to students residing outside of the RCs (Huffines et al., 2021). As detailed in Appendix A, since the massification of higher education in the mid-twentieth century, sense of belonging has been examined for college students across multiple identities at an array of institution types (Ellison & Braxton, n.d.; Hoffman et al., 2002; Hurtado & Carter, 1997; Mayhew et al., 2016; Pascarella & Terenzini, 2005; Strayhorn, 2019; Tinto, 1993; Tovar & Simon, 2010).

Strayhorn (2019) asserts that sense of belonging motivates college student behavior – both beneficial and harmful: students may join an organization to increase sense of belonging, but they may also withstand dangerous or humiliating hazing in hopes of belonging. Strayhorn (2019) explains that sense of belonging is contextual and temporal. The traditional college age student in late adolescence exploring their identity may have a heightened need to belong. This nuance is critical in understanding sense of belonging for marginalized students, who also are more likely to feel alienated, and therefore have an enhanced desire for belonging.

Research suggests that students with different identities and backgrounds can have very different perceptions of their campus climate (Reason & Rankin, 2006; Strayhorn, 2019). Johnson et al. (2007) analyzed sense of belonging for 2,967 first-year students utilizing the National Study of Living-Learning Programs (NSLLP) survey data from 2004. The authors found that White students reported a greater sense of belonging as compared to Black/African American, Hispanic/Latino/a/x, and Asian Pacific American students, and that the perception of a supportive residence hall was strongly associated with belonging, especially for Asian Pacific

American students. Additional predictors of sense of belonging included the students' perception of the campus racial climate and their experience transitioning to college (Johnson et al., 2007). Stebleton et al. (2014) examined sense of belonging for first-generation college students utilizing the 2009 Student Experience in the Research University survey, finding that first-generation students reported a lower sense of belonging and satisfaction as compared to their peers. In addition, the authors found that first-generation students suffered higher levels of stress and depression, and yet utilized campus mental health support services at lower rates.

METHODOLOGY

PROJECT SITE

Model University is a small, private liberal arts college in the Northeast of the country with an average of 3,000 undergraduate students (Model University, n.d.-b). A highly residential campus, Model is known for its small class sizes, for the accessibility and research-oriented focus of its faculty, and for its strong athletic programs. Students can participate in nearly 300 student organizations as well as a thriving Greek Life community. The university is a predominantly White campus reflected in both its students and faculty composition (Model University, n.d.-a). About one in ten students are the first in their families to obtain a four-year degree (Model University, n.d.-b), and 10 percent of students are Pell Grant recipients (Model University, 2021). Institutional leaders are focusing heavily on improving the campus climate through a detailed diversity, equity, and inclusion plan, which also connects directly to the institution's strategic plan (Model University, 2019; Rentería Mendoza et al., 2021).

RESIDENTIAL COMMUNITIES AT MODEL UNIVERSITY

First-year students are required to be part of one of four RCs, each of which is comprised of a cluster of residence halls, based on their ranked academic interest in a first-year course, which is also required for all first-year students. The first-year course is often, but not always, taught in one of the residence halls associated with the respective community, and the faculty who teach these courses are considered faculty affiliates to that community. Each community has a leadership team comprised of a Residence Life professional, a set of faculty or academic staff co-directors, and a residential coordinator. The residential coordinator position is a one-year position that is filled with a recent graduate to assist with the daily operations of the community. During their first two-years at Model, students engage with each other and with their faculty directors and residential director in academic and social activities designed to maximize their experiences and connect them to the campus. Model's residential communities are collaboratively supported through financial and human resources from both academic and student affairs. These resources range from faculty release time and staff reassignment time, to dedicated positions, to programming funds, as well as new residence hall facilities. While the collaborative model may have some challenges (Huffines et al., 2021), the RC model is a high priority for the university as it has been incorporated into the strategic plan with a high level of support from the Board of Trustees.

All first-year students are placed into one of the RCs and live in the residence halls associated with their assigned community for two years. Students are placed into a community based on their ranking of first-year seminars. The Registrar groups students based on their rankings, which they attempt to honor, into a first-year course. Once students are placed into a course, first-year courses are distributed across the four communities and their residence hall capacity. Students are spread out throughout the communities to ensure a wide range of academic interests are represented across the RCs, except for a scholars' program that serves first-generation students. Each community has between eight to 14 first-year courses assigned within its residence halls. Notably, once students are placed into a RC, they are not typically housed on the same floor or in the same residence hall with other students in their first-year course.

OVERVIEW OF DATA ANALYSES

In this mixed methodology assessment, we perform data analysis of institutional data from the Your First College Year (YFCY) and National Survey of Student Engagement (NSSE) data, conduct intensive, semi-structured interviews (Charmaz, 2014) with current Model University students, and perform a document analysis of publicly available documents (IRB212053). Our team also conducted information interviews with administrators, faculty, and staff associated with the development and implementation of the RCs for a greater understanding of the RC structure at Model University, and to provide critical context for the development of recommendations for Model University.

QUANTITATIVE INSTRUMENTS

Using the framework described above, the team used the National Survey of Student Engagement (NSSE) and the Your First College Year (YFCY) survey instruments available from the institution to develop the constructs contained within the framework.

NSSE

The team used data from the 2020 NSSE survey administered by the Center for Postsecondary Research at Indiana University Bloomington School of Education. In 2020, the national survey collected information from first-year and senior students from 601 colleges and universities around the country ("About NSSE," 2021). Each institution receives an analysis and individualized reports, which compare its students to selected peers, along ten engagement indicators, six high impact practices, and all survey questions ("About NSSE," 2021).

Recognizing the importance of concepts like involvement and engagement, three of NSSE's benchmark categories are related to engagement: active and collaborative learning, student interactions with faculty members, and enriching educational experiences. While the team does not use all the NSSE constructs, the team used three types of questions included in the survey that address time spent engaging in "educationally purposeful activities," (Kuh, 2009, p. 11) institutional requirements, and perceptions about the college environment. Rather than attempting to measure student outcomes directly, these questions aim to measure how students engage in their college environment ("About NSSE," 2021).

YFCY

The team also used data from the YFCY instrument along with ten optional questions included by the institution as part of the survey (See Appendix B for institutional questions). The instrument measures student learning, involvement, satisfaction, and retention of first-year students ("Your First College Year survey," 2021). The YFCY instrument is administered through the Cooperative Institutional Research Program and was developed in 2000 through a collaboration between the Higher Education Research Institute and the Policy Center of the First Year of College ("Your First College Year survey," 2021).

INPUT, ENVIRONMENT AND OUTPUTS VARIABLES

For the quantitative analysis, the team created several dummy variables, new variables, and scales described below, and we used a few existing variables. The team created the new variables and scales using concepts derived from the LLC (Inkelas et al., 2007, 2018; Schreiner, 2010), high-impact practices (Kuh, 2001, 2008), student involvement (Astin, 1999), and sense of belonging (Garvey et al., 2020; Strayhorn, 2019) literature. Table 2 provides the summary statistics for the environment and output variables and scales.

INPUT VARIABLES

RACE/ETHNICITY. For the race/ethnicity construct in the framework, the team created dummy variables and generated new variables for use in statistical tests. Due to the small number of students in the sample, the team decided to combine students into a dummy variable for students of color. This variable includes the dummy variables for the various types of racial/ethnic groups in the sample and combines these into larger categories (Asian, Black/African American, Hispanic/Latino/a/x, and Native American). We created a "Two or More Races/Ethnicities" dummy variable to capture students who selected more than one race

apart from Hispanic/Latino/a/x, who are captured in the Hispanic/Latino/a/x dummy variable regardless of race (Viano & Baker, 2020). We then combined the four dummy variables into the “Students of Color” dummy variable along with students who indicated “Other.” We acknowledge that this grouping of students is a limitation, as students from different races/ethnicities have nuanced experiences based on the social identities with which they most identify (Abes et al., 2007), even within racial/ethnic groups. We, therefore, use this dummy variable with caution and informed by QuantCrit literature (Gillborn et al., 2018). We also acknowledge that race/ethnicity is socially constructed, and it measures more than just racial/ethnic identities; this variable is imbued with other dimensions of identity, privilege and power (Garcia, 2017; Gillborn et al., 2018; Kirkland, 2019; Viano & Baker, 2020). Any differences that emerge are interpreted with an asset-based lens within the context of the institution, its structures, processes, and environment.

FIRST-GENERATION STATUS. The team created a dummy variable for first-generation status using the NSSE *parented* variable by grouping students whose parents or individuals who raised them completed up to an associate degree. For the YFCY dataset, the team had available as part of the dataset a dummy variable, *FIRSTGEN_TFS*, comprised of students whose parents or individuals who raised them had less than “some college.” This variable had a low number of students ($N = 5$); therefore, we created an additional dummy variable for the YFCY dataset, called *targetpopulation*.

TARGET POPULATION. This dummy variable grouped students of color and first-generation students in the YFCY dataset, which are the target population of interest for this project.

ENVIRONMENT VARIABLES

PEER INTERACTIONS – ACADEMIC. The team used the NSLLP composite scale ACADPEER (Inkelas et al., 2007) as a foundation for the creation of the Peer interactions – academic dependent variable. Inkelas et al. (2007) include three variables related to discussing their academics and career with peers. With a Cronbach alpha of $\alpha = .73$ in the 2004 NSLLP and $\alpha = .81$ in the 2007 follow-up survey, the three-item scale included sharing concerns about classes and homework assignments, discussing what students learned in classes, and talking about current news with other students (Inkelas et al., 2007). With NSSE variables, we created a three-item scale for peer interactions-academic. The three items were *CLaskhelp*, *CLexplain*,

and *CLstudy* (See Appendix C for details on these variables). For the YFCY instrument, we used one variable; *ACT31* Studied with other students.

PEER INTERACTIONS – SOCIAL. For the peer interactions social scale, the team focused on social connections, as this dimension has been found to be a dimension of interpersonal thriving for college students (Schreiner, 2010). Based on this construct, we created a six-item scale with YFCY variables (*OPTQ02*, *OPTQ05*, *OPTQ08*, *OPTQ09*, *INTACT02*, *CLSACT10*; see Appendix C for details on these variables) with a Cronbach’s alpha of $\alpha = .73$. The questions included focused on the social interactions with students in the residence hall and developing interactions with friends. For the NSSE survey, the team used one variable—*Qlstudent* Indicate the quality of your interactions with the following people at your institution: Students.

FACULTY INTERACTIONS. To create the scale for faculty interactions, we relied on a combination of the NSSE student-faculty interaction construct and the faculty interactions scales in the NSLLP (Inkelas et al., 2007; “NSSE 2019 Engagement Indicators Internal Consistency Statistics by Class Level,” n.d.). The NSLLP scales, CRSEFAC ($\alpha = .74$ for the 2007 NSLLP sample) and MENTFAC ($\alpha = .67$ in 2004 and $\alpha = .74$ in the 2007 follow-up sample) showed adequate internal consistency. We also used the NSSE student-faculty interaction construct shown to have an internal consistency of $\alpha = .84$ for first-year students (“NSSE 2019 Engagement Indicators Internal Consistency Statistics by Class Level,” n.d.). Based on these two scales, we created a seven-item scale with YFCY variables ($\alpha = .67$) which included the variables *INTACT01*, *INTACT05*, *INTACT06*, *ACT01*, *COLOPN01*, *COLOPN04*, *CMPSAT01*, and *SERVICES08* (see Appendix C for details on these variables). We modified the NSSE scale by adding *Qlfaculty*. Indicate the quality of your interactions with the following people at your institution: Faculty, which resulted in a Cronbach’s alpha of $\alpha = .73$ for our five-item scale.

STAFF INTERACTIONS. We operationalized this construct using two single variables in each dataset. For the YFCY data we included the variable, *COLOPN02* At least one staff member has taken an interest in my development. The NSSE variable we used to operationalize staff interactions was *Qlstaff*. Indicate the quality of your interactions with the following people at your institution: Student services staff (career services, student activities, housing, etc.). While this variable is not specific to the RC model, students spend a portion of their time in the residence halls interacting with Residential Life professionals during their first year.

PERCEPTION OF FIRST-YEAR COURSE. The recent full implementation of the first-year course as part of the RCs at Model makes this variable important to examine. Therefore, the team created a scale for the YFCY dataset using three questions of the institutional questions added to the survey: *OPTQ04* I was satisfied with my [first year course], *OPTQ06* There was a strong sense of community in my [first year course], *OPTQ07* I have a positive relationship with my [first year course] instructor/advisor. The Cronbach's alpha for this scale was $\alpha = .81$.

INVOLVEMENT IN PROGRAMMING. Involvement is the amount of energy, physical and psychological, that the student devotes to their academic experience (Astin, 1999). Guided by this theory, we created a co-curricular involvement variable in both datasets to operationalize this construct by capturing the type of activities in which students participate or expect to participate, in the case of NSSE. For the YFCY, we recoded the nine participation variables in the *COLACT* question series from 1 = No and 2 = Yes to 0 = No and 1 = Yes. We also created a dummy variable for *ACT25* Performed volunteer work. We then generated a variable that added the number of activities in which students participate using the binary variables in the *COLACT* series and *ACT25* (see Appendix C for variables list). Similarly, we created dummy variables for five NSSE variables (*intern*, *abroad*, *research*, *leader*, and *learncom*). Then, we generated a new variable, which totaled the current or expected level of involvement for students.

DIVERSE INTERACTIONS. To develop the diverse interactions scale, we used the NSSLP composite scale POSDIVIN from the NSLLP report (Inkelas et al., 2007). The original composite scale has six items that reflect the interactions with diverse peers such as intellectual discussions outside of class, sharing personal feelings or concerns, sharing a meal, attending social events, and discussing race/ethnicity outside of their courses (Inkelas et al., 2007). Using this scale as our foundation, we created a nine-item scale using YFCY variables ($\alpha = .85$), which included questions about interacting with students from different race/ethnicity and sexual orientation—*ETHEXP02*, *ETHEXP06*, *ETHEXP08*, *ETHEXP05*, *ETHEXP09*, *ETHEXP10*, *COLACT10*, *ACT42*, *OPTQ08* (see Appendix C for details). The NSSE scale we created using the NSSLP composite scale also mirrored NSSE's scale for Discussions with diverse others with a Cronbach's alpha of $\alpha = .81$ ("NSSE 2019 Engagement Indicators Internal Consistency Statistics by Class Level," n.d.). The Cronbach's alpha for our scale with only first-year students was $\alpha = .75$.

PERCEPTIONS OF RESIDENCE HALL CLIMATE. We used Inkelas et al.'s (2007) residence hall climate scales RHACAD ($\alpha = .77$ for the 2004 NSLLP and $\alpha = .80$ for the 2007 NSLLP) and RHSOC ($\alpha = .86$ for the 2004 NSLLP and $\alpha = .88$ for the 2007 NSLLP) to develop our residence hall climate scale with the YFCY dataset. We created a four-item scale using the variables *OPTQ01*, *OPTQ08*, *OPTQ09*, and *OPTQ10* (see Appendix C for details on these variables). The Cronbach's alpha for our scale was $\alpha = .78$.

PERCEPTIONS OF INSTITUTIONAL CLIMATE. Using Maslow's (1968) concept of safety and Steele's (2010) concept of stereotype threat, we created a variable for student's perceptions of the institutional climate. We used one variable in the NSSE dataset to operationalize this construct—*SEdiverse* How much does your institution emphasize the following? Encouraging contact among students from different background (social, racial/ethnic, religious, etc.). With YFCY variables, we were able to create a nine-item scale with a Cronbach's alpha of $\alpha = .82$ (*AFFACT12*, *COLOPN20*, *COLOPN44*, *COLOPN48*, *CMPSAT08*, *CMPSAT09*, *CMPSAT17*, *CMPSAT12*, *CMPSAT15*). The detailed variables descriptions are included in Appendix C. We recoded the first four items of the scale for scale creation. We recoded *AFFACT12* to 1 = Frequently to 3 = Not at all, and we recoded the *COLOPN* variables to 1 = Strongly Agree to 4 = Strongly Disagree.

PHYSICAL SPACE. Based on Garvey et al.'s (2020) finding that the physical residence hall space is related to sense of belonging for first-generation students, we included this construct in the model. We operationalize the construct using *SATIS21* Please rate your satisfaction with your college in each area: Student housing (e.g., res halls) for the YFCY dataset. The NSSE survey did not include questions related to physical space.

ACADEMIC TRANSITION. The team used the YFCY Academic Adjustment construct to create our composite scale for this variable, which includes four items and was created using Item Response Theory to evaluate the construct's unidimensionality (Cooperative Institutional Research Program, n.d.; Sharkness et al., 2010). We used the four items in the YFCY composite scale (*EASY9*, *EASY6*, *EASY1*, *EASY8*) with a Cronbach's alpha of $\alpha = .75$, and we used two items in the NSSE dataset (*SEacademic* and *SElearnsup*) with a Cronbach's alpha of $\alpha = .71$.

OUTPUT VARIABLES

PERCEPTION OF INTELLECTUAL GROWTH. We combined the NSLLP composite scales (Inkelas et al., 2007) for intellectual growth into one scale—growth in academic cognitive complexity *COGGROW* ($\alpha = .78$ for the 2004 NSLLP and $\alpha = .82$ for the 2007 NSLLP), and growth in liberal learning *LIBGROW* ($\alpha = .78$ for the 2004 NSLLP and $\alpha = .81$ for the 2007 NSLLP), and growth in personal philosophy *PERGROW* ($\alpha = .78$ for the 2004 NSLLP and $\alpha = .79$ for the 2007 NSLLP). We were not able to assemble a scale with an adequate Cronbach’s alpha using items from the YFCY dataset. Using the NSSE dataset, we created a seven-item scale, which had a Cronbach’s alpha of $\alpha = .79$, providing evidence of internal consistency.

PERCEPTION OF ACADEMIC SKILLS. Like perceptions of intellectual growth, we used Inkelas et al.’s (2007) composite scale for student’s confidence in academic skills, *SKILLCON*, which contained five items regarding student’s confidence in their writing ability, expressing ideas orally, reading ability, research ability, and library skills. Unlike the previous variable, we were able to generate a scale for each dataset. With the YFCY dataset, we included five items: *RATE02*, *RATE20*, *RATE23*, *RATE25*, and *DIVRATE6* (See Appendix C for details on variables). The Cronbach’s alpha for this scale was $\alpha = .80$. With the NSSE dataset, we generated a four-item scale ($\alpha = .73$) including the variables *pgwrite*, *pgspeak*, *pganalyze*, and *pgprobsolve*.

SELF-REPORTED GPA. Self-reported GPA has been shown to be a reliable measure of student’s academic performance (Sanchez & Buddin, 2016), and Kuncel et al. (2005) found the validity of GPA for college to be higher than GPA in their meta-analysis. However, we use self-reported GPA with caution as the literature also finds fluctuations based on race/ethnicity, gender, and income, among other student characteristics (Kuncel et al., 2005; Sanchez & Buddin, 2016). Each of the instruments asked students to self-reported their GPA. In the YFCY instrument, the variable is *CURRGPA* What is your overall grade average (as of your most recently completed academic term)?, which was coded 1 = I did not receive grades in my courses, 2 = D, through 9 = A or A+. We recoded any “1” responses to a missing value, and then assigned 1=D through 8= A or A+. For the NSSE instrument, the variable is *grades* What have most of your grades been up to now at this institution?, which was coded 1=C- or lower to 8=A. We did not recode the NSSE values.

SENSE OF BELONGING IN RESIDENCE HALL. We operationalized sense of belonging in residence hall using one variable in the YFCY dataset *OPTQ03* Would you agree with the

following? I feel a sense of belonging in my residence hall. The NSSE instrument did not include any questions specific to the residence hall.

OVERALL SENSE OF BELONGING. When we compared the Inkelas et al. (2007) sense of belonging four-item composite scale, SENSBEL ($\alpha = .88$ for the 2004 NSLLP and $\alpha = .88$ for the 2007 NSLLP) to the YFCY sense of belonging scale (Cooperative Institutional Research Program, n.d.), we found them to have similar items. Thus, this demonstrates construct validity. Therefore, we used the four items (*COLOPN27*, *COLOPN16*, *COLOPN14*, *COLOPN28*) in the YFCY scale producing a strong Cronbach's alpha ($\alpha = .89$). We also generated the overall sense of belonging scale in the NSSE dataset using *sbmyself*, *sbvalued*, *sbcommunity*, and *sameinst*. The Cronbach's alpha for this scale was also strong ($\alpha = .88$).

SATISFACTION. To operationalize overall satisfaction, we selected one variable in the NSSE dataset, *evalexp* How would you evaluate your entire educational experience at this institution? In the YFCY dataset, we used the four-item YFCY Overall Satisfaction scale as a foundation (Cooperative Institutional Research Program, n.d.), and removed one item measuring overall satisfaction with the quality of instruction since the RC model is only tied to one course. The final items we included were *SATIS25*, *CMPSAT05*, and *DO_OVER* ($\alpha = .88$).

AFFINITY FOR THE INSTITUTION. The final variable of the framework is operationalized with a single item from each instrument: *DO_OVER* If given the choice, would you still choose to enroll at your current (or most) recent college? (YFCY) and *sameinst* If you could start over, would you go to the same institution you are now attending? (NSSE).

Table 2
Summary Statistics for Environment and Output Variables

	YFCY Combined ^a			NSSE		
	M	SD	Obs.	M	SD	Obs.
Environment Scales and Variables						
Peer interactions – academic	2.35	0.62	130	2.59	0.71	168
Peer interactions – social	3.99	1.22	150	5.39	1.28	167
Faculty interactions outside of class	2.90	0.54	150	2.76	0.61	167
Student services staff interactions	3.18	0.85	126	5.55	1.77	165
First-year course	3.77	0.97	105			
Co-curricular involvement	2.53	1.58	114	4.24	1.46	165
Diverse peer interactions	2.94	0.73	131	3.10	0.65	167
Institutional climate	3.07	0.65	144	2.44	1.00	167
Residence hall climate	3.15	1.02	105			
Space	4.58	0.94	138			

Outputs Scales and Variables						
Academic transition	2.71	0.60	136	3.12	0.63	167
Intellectual growth				2.74	0.56	168
Confidence in academic skills	3.80	0.64	137	2.52	0.63	167
Self-reported GPA ^b	7.21	1.36	129	6.56	1.16	166
Residence hall sense of belonging	2.91	1.27	102			
Overall sense of belonging	3.09	0.66	126	3.05	0.65	167
Satisfaction	4.46	0.81	139	3.24	0.69	167
Affinity	4.05	1.12	118	3.17	0.78	167

Note. M = Mean, SD = Standard Deviation

^aYFCY Combined includes year 2017 and 2018 datasets

^bSelf-reported GPA is coded from 1=C- or below to 8=A.

DATA COLLECTION

INSTITUTIONAL SURVEYS

The Vanderbilt team was provided de-identified student data for three years of the Your First College Year Survey for years 2016 through 2018 as well as data for the National Survey of Student Engagement for 2020. Model also included the students' RC affiliation as part of the deidentified data. Only students assigned to an RC are included in the samples analyzed. Descriptive statistics for YFCY and NSSE samples are in Table 3.

The team combined YFCY data for 2017 and 2018 to create an aggregated sample for analysis. The team selected these two years because the gradual implementation of the RC model was mostly complete by 2018, providing a greater number of students who were placed in a residential community. The response rates for the Your First College Year are 13 percent and 16 percent, respectively. In total, the sample for the YFCY surveys includes 156 first-year students who were assigned to an RC. Due to the data available, we were unable to exclude international students in YFCY sample.

For the NSSE survey, 451 students completed the survey of which 200 identified as first-year students. All first-year students were assigned to a RC. The NSSE response rate was 36 percent among first-year students. We omitted international students from our sample in the NSSE sample for a total sample of 169 students.

Table 3
Descriptive Statistics for YFCY and NSSE Data

	YFCY Combined ^a		NSSE	
	N= 156		N= 169	
	Percent	Frequency	Percent	Frequency
First-year student	84.62%	132	97.63%	165
Female-identifying	70.51%	110	62.72%	106
First-generation	3.21%	5	14.79%	25
White	69.23%	108	69.23%	117
Black/African American	7.05%	11	4.14%	7
Asian	12.18%	19	4.73%	8
Latino/a/x (of any race)	10.26%	16	8.88%	15
Two or more races/ethnicities	12.18%	19	7.69%	13
Other ^b	-	-	-	-
Students of color ^c	30.13%	47	25.44%	43
RC participation	100.00%	156	100.00%	169
Chestnut	25.00%	39	28.40%	48
Elm	16.03%	25	16.57%	28
Dogwood	23.08%	36	24.26%	41
Willow	35.90%	56	30.77%	52
Athlete	20.53%	26	14.79%	25
Disability			11.00%	22

Note. The reported breakdown for race/ethnicity may add up to more than 100%.

^aYFCY Combined includes year 2017 and 2018 datasets

^bThe number of students who selected "Other" as their racial/ethnic category is less than five, so we are not reporting these numbers.

^cStudents of color include Asian, Black/African American, Hispanic/Latino/a/x of any race, Native American, Pacific Islander, and students who selected more than two races/ethnicities or "Other".

STUDENT INTERVIEWS

Semi-structured, intensive student interviews were conducted virtually utilizing Zoom; the team transcribed the interviews utilizing Otter.ai (Charmaz, 2014). An interview protocol (Appendix D) was developed and refined based on the team's research questions, conceptual framework, literature review, and Model University's goals for the RCs, and included questions to explore students' perceptions of RC programming, their participation in the RC community, student engagement in the RCs, their affinity for the RCs, and their perceived academic needs. We utilized a purposive sampling approach, by which student emails were provided by Model University for first- and second-year students of color. A total of 208 first- and second-year students were emailed in two different clusters. Students received a total of three emails, two of which were email reminders. Nine students responded to the email outreach (see Table 4), and seven students were interviewed. One student did not sign up for the interview using the team's scheduling system (Calendly), and another student did not attend the scheduled interview. The

team offered an incentive of five tokens for pizza at a local restaurant. Following the interviews, the team coded the first transcript together, developing an index code based on the protocol, and utilized a grounded theory approach to identify focus codes based on interview themes (Charmaz, 2014). The subsequent interviews were coded by one team member and reviewed by a second member for inter-coder reliability (McAlister et al., 2017). A matrix was developed highlighting illustrative quotes from the transcripts associated with central themes.

Table 4

Student Interviewee Demographics

Pseudonym	Race/Ethnicity	First-Gen	RC	Class Year
Amaya	South Asian	No	Elm	First-Year
Eva	"none," "mixed," "other"	No	Dogwood	Sophomore
Lavender	African American	No	Willow	First-Year
Mo	Asian and South Asian	N/A	Chestnut	First-Year
NK	African American	No	Chestnut	First-Year
Stella	White and South Asian	No	Elm	First-Year
Ty	South Asian	Yes	Chestnut	First-Year

DOCUMENT ANALYSIS

The team collected institutional documents from Model University’s website and the university’s newspaper. The team also received several documents from institutional representatives that were printed and widely distributed on campus. A total of 23 documents were collected for analysis to learn about the university’s implementation of the RC model, including institutional support for various aspects of the model such as programs, practices, and infrastructure. Ten of the documents were published after implementation of the RC, with the other 13 either having no publication date (e.g., a virtual campus map) or being published before 2018. The variety of publication dates, document types, purposes, and audiences are included in Appendix E. For the purposes of determining the audience, “internal stakeholders” include one or more of: students, faculty, staff, administration, alumni, and Board of Trustees. “External stakeholders” include one or more of: parents/families or the public.

Utilizing the conceptual framework previously outlined, the documents were coded according to two schemas: environment themes and output themes. Each document was scanned initially to determine its type, purpose, and intended audience. To code for themes, each article was read twice more—once to code for environment and output themes and a second time to specifically address the project questions (Bowen, 2009; Neergaard Booker, n.d.; Triad 3, 2016).

The document analysis revealed that many of the tenets of the living learning community best practice model established by Inkelas et al. (2018) and environmental aspects of the successful model were regularly cited across all document types. In total, there were 195 instances of environment themes coded in the documents. In contrast, only 32 output themes were coded. Frequencies for each code, grouped by coding schema, are included in Appendix E. Documents have been de-identified to maintain institutional anonymity.

Reports were by far the richest source of data, including 275 of the 458 themes that were coded across the 23 documents. Articles from Model's student newspaper included another 118 themes. Documents intended for multiple internal audiences included the most codes (281), while the single document targeting an alumni audience included only 14 codes across the three schemas.

QUANTITATIVE AND QUALITATIVE ANALYSIS

For the quantitative data, the team performed independent sample t-tests to compare students of color to White students and first-generation students to continuous-generation students. With the YFCY data, we report on the target population group, which includes the students of color and first-year students due to the low number of students identified in the sample who met the second criterion. Our hypothesis for each test is that a statistically significant difference exists between the groups, as the institution is interested in learning whether (quantitative) and how (qualitative) the RC model is benefitting students of color and first-generation students. Research suggests that the team's target populations often experience challenges at predominantly White, private institutions (Eidum et al., 2020; Fink & Hummel, 2015; Hurtado & Carter, 1997; Purdie & Rosser, 2011; Steele, 2010; Strayhorn, 2019). For each environment and output variable in this section, our team discusses the qualitative findings that emerged from the student interviews and document analysis to inform the findings of the quantitative tests and triangulate answers to our project questions.

RESULTS

The complete results of the qualitative and quantitative analyses performed for this study, including illustrative quotes from student interviews and statistical findings, are included in Appendix F. Overall, we found that students of color and first-generation students had similar experiences to their White and continuous-generation peers for most of the environment and output variables. The following results represent the most noteworthy findings from across the analyses and should serve to familiarize the reader with significant themes that emerged.

ENVIRONMENT

- **Similar to their White and continuous-generation peers, students of color and first-generation students have limited interactions with faculty.** In the document analysis, faculty interaction was the second most frequently occurring theme. Building strong intellectual and personal connections with faculty members was presented as central to the RC model. Despite this emphasis, student interviewees conflated live-in residential experience staff with their faculty/staff RC directors, suggesting that they do not know who their faculty directors are. Although two students described meaningful interactions with faculty or Resident Life staff, only one student correctly identified their faculty director by name. When asked about her faculty director, Stella said, “I don’t really know if there’s anybody who was like a faculty advisor for the RC in my building, so I don’t think I’ve interacted with anyone.”
- **A race-related incident reported in the student newspaper is illustrative of at least one reason why students of color have a more negative perception of institutional climate than their White peers.** According to YFCY data, students of color ($M = 2.85$, $SD = 0.71$) have a more negative perception of the institutional climate than their White peers ($M = 3.16$, $SD = 0.61$), $t(142) = 2.59$, $p = .011$. Hedges’ effect size ($g = .48$) indicates the differences to be of moderate practical significance (Dodge, 2003). These results are confirmed by the NSSE data, which also revealed statistically significant differences. Anecdotally, two interviewees who identify as African-American confirmed that the classroom is not necessarily a safe space; one noted, “I can’t count the classroom [where I feel comfortable] cuz crazy stuff can always happen in the classroom. So that’s not completely safe.” We found similar results in the NSSE data. Students of color ($M = 2.07$, $SD = .87$) have a more negative perception of the emphasis the institution placed on encouraging contact among students from different backgrounds than their White peers ($M = 2.56$, $SD = 1.02$), $t(164) = 2.76$, $p = .007$. And, first-generation students

reported a more negative perception of the institutional climate ($M = 2.04$, $SD = 0.93$) when compared to their continuous-generation peers ($M = 2.50$, $SD = 1.00$), $t(162) = 2.10$, $p = .037$). The effect sizes for both are moderate to strong based on the Hedges' g value ($g = .50$ and $g = .43$, respectively).

- **Students of color and first-generation students are having more diverse interactions than their White, continuous-generation peers.** YFCY tests found that the target population of this study ($M = 3.13$, $SD = 0.64$) have more diverse interactions than their White, continuous-generation peers ($M = 2.86$, $SD = 0.76$), $t(129) = 1.99$, $p = .049$. The difference is of moderate practical significance based on Hedges' effect size of $g = .37$. This is expected given that Model has a majority-White, continuous-generation student body. However, there was a bright spot in the target population's diverse interactions. Two students described proactively seeking out identity-based interactions and programming, and Ty described a meaningful experience associated with his first-year course when his peers engaged in a conversation highlighting "diverse perspectives."
- **The lack of specificity about what programming would be provided via the RCs was reflected in students' ambivalence towards RC programming.** There were no statistically significant differences between the target population and their White, continuous-generation peers regarding their level of involvement in co-curricular programming. While all student interviewees were aware of RC programming and could generally specify the programming cadence (e.g., one program per month), five out of seven students indicated they either do not attend or rarely attend RC programming. Students report that they are prioritizing non-RC experiences such as club sports or campus employment in lieu of attending RC programming, though when they do attend RC programming, they are most interested in events with free food.
- **Students were eager to discuss barriers to finding community created by the physical spaces comprising RCs.** Three students identified RC facilities as a barrier to peer interactions specifically because of Model University's policy to limit residential hall access to a student's personal residence. Two of the six students expressed an interest in changing RCs based on their dissatisfaction with facilities. One student (Dogwood RC) noted that her building lacked a large enough shared space for socializing and RC programming. Four out of seven students identified the distance between buildings both within and across RC as a barrier to social interactions. In addition to students' explicit negative comments, the team also noted that a clear cultural divide between students who live in residence halls "up the hill" versus those who live "down the hill." These cultural and physical barriers between students in the RCs, which seem to mutually

reinforce students' likelihood to spend time only in their own RC, were evident throughout all seven interviews.

- **Despite the institutional emphasis on peer interactions within the RC model, students of color and first-generation students had lower academic interactions with peers within the RCs.** The YFCY set of analyses revealed that students of color ($M = 2.18$, $SD = 0.68$) studied with peers less than their White peers ($M = 2.42$, $SD = 0.58$), $t(128) = 2.03$, $p = .044$. Hedges' effect size ($g = .39$) indicates the differences to be of moderate practical significance. Our combined target population also had lower peer interactions related to academics ($M = 2.18$, $SD = 0.68$) than their White, continuous-generation peers ($M = 2.42$, $SD = 0.58$), $t(128) = 2.13$, $p = .035$. The difference also showed a moderate effect size ($g = .39$) for practical significance. However, students in the NSSE sample had similar experiences to their peers. These mixed results were reflected in the relatively low number of references to academic interactions with their peers from student interviewees.
- **Compared to institutional peers who tout similar LLC experiences, Model spends two-thirds less on student services as a percentage of operating expenses.** Furthermore, Model is in the bottom half of student services spending among its self-reported peers, averaging just 1.12% of its total operating budget from 2018-2021 (Boyd et al., 2021). Most references to finances in institutional documents centered around building new residential halls. However, students noticed needs other than physical spaces that are not being met. Stella identified that students' needs may be inadequately addressed by residential staff because of insufficient staffing, and Ty suggested the limited interaction with his faculty director could be due to the high faculty-to-student ratio in his RC: "So maybe... it's not their fault or anything because there's like, what 2,000 of us, [and] there's like, five of them. So, it's not much you can do there."

OUTPUTS

- **Students of color and first-generation students residing in the RCs do not have an increased sense of belonging.** In fact, the YFCY data showed a lower sense of belonging for students of color ($M = 2.78$, $SD = 0.74$) compared to White students ($M = 3.21$, $SD = 0.58$), $t(124) = 3.51$, $p = .001$, Hedges' $g = .68$ that was amplified when first-generation students were combined with students of color ($M = 2.76$, $SD = 0.74$) as compared to their White, continuous-generation peers ($M = 3.23$, $SD = 0.57$), $t(124) = 3.858$, $p = .000$, Hedges' $g = .74$. However, qualitative interviews suggest that while the RCs do not offer

the target population sense of belonging, these students do find belonging and community at Model through other means, including club sports, student organizations, and academic interests. Finally, “sense of belonging” only appeared three times in the document analysis.

- **Despite Model’s repeatedly stated intention to create affinity via the RCs, students’ reported affinity was low.** While the document analysis suggests that building affinity through the RCs was a key goal for Model, with “affinity” appearing 14 times, the quantitative data analysis shows similar affinity between students of color and first-generation students and their comparison groups. Student interviews suggest affinity for the RCs is low, except for a specific outlier. While Mo noted that “he couldn’t tell you” what it means to live in the RC, and Amaya responded that “it doesn’t have that huge of an impact,” Ty indicated that it was “more like a sense of community.” On the whole, students held more affinity for their building irrespective of their RC.
- **When examining the academic transition scale, the team found mixed results.** Analyses of the YFCY data found statistically significant results when comparing the academic transition scores of students of color ($M = 2.41$, $SD = 0.68$) to White students ($M = 2.84$, $SD = 0.52$) and when comparing the combined groups of students of color and first-generation students ($M = 2.43$, $SD = 0.68$) to their White, continuous-generation peers ($M = 2.84$, $SD = 0.52$), $t(134) = 3.93$, $p = .000$ and $t(134) = 3.80$, $p = .000$, respectively. This means that our target population has lower academic transition scores than their peers, with strong effect sizes ($g = .75$ and $g = .71$, respectively). Yet, the NSSE data did not reveal any statistically significant differences. Three of the students were unable to connect their RC experience to their academic transition in college. For example, Amaya noted, “I feel like it really hasn’t impacted me academically and I don’t think it will because it’s more like, a social kind of grouping rather than like something that affects academics.” However, two students did recognize the value of the RC in supporting their academic journey, connecting their proximity to peers and classmates in the RC with the ability to ask questions about homework, form study groups, and discuss their first-year seminars. Ty stated: “I have these people and I do study with a lot friends from my RC. We do have certain classes together. And if I don’t know something, there’s always someone within the RC that knows things I don’t know.”
- **While the literature suggests that RCs benefit students’ academic success as measured by GPA (Inkelas et al., 2007; Kuh, 2008), students of color and first-generation students report lower GPAs at Model University.** This finding, which was confirmed by three of the four quantitative tests with moderate to strong effect sizes is

surprising because we found that these students also have similar perceptions of their intellectual growth and confidence in their academic skills compared to their White and continuous-generation peers (see Results in Appendix F). There were no references to student GPA (self- or institutionally reported) in any of the documents in the document analysis, suggesting that this measure of academic success has not been incorporated into the RC goals and objectives.

DISCUSSION

While students of color and first-generation students had similar experiences with the RC environment and a few similar outcomes, study findings reveal statistically significant differences for students of color and first-generation students as compared to their White and continuous generation peers across the following dimensions: lower student perceptions of the institutional climate, fewer interactions with peers in study groups, difficult academic transitions, a reduced sense of belonging, and lower self-reported GPA. Below, we discuss how the results relate to the project questions posed at the beginning of this study.

1

What programming and resources are needed via the RC model to support students of color and first-generation students in campus life and academics?

Based on the findings in the environment bucket, students of color and first-generation students seemed to have low or minimal academic interactions or experiences within the RCs. For instance, the team found that students of color and first-generation students in the YFCY survey did not study with peers as much as their White and first-generation peers, though they had similar social interactions to their peers. This finding suggests that the RC model may not emphasize peer-to-peer academic interactions. Alternatively, students in a first-year course may not be assigned the same floor or building within an RC, preventing them from studying with their peers. Scholars (Steele, 2010; Tatum, 2017) have found that students of color are less likely to study in groups, which places them at a disadvantage in comparison to their peers. This can also be extended to first-generation students who have lower cultural capital than their continuous generation peers. Likewise, we found that students of color and first-generation students had limited interactions with faculty members overall and within the RC system. While

faculty interactions were similar to their White and continuous-generation peers, the student interviews revealed that our participants did not know who their faculty directors were and could not discuss, for the most part, a co-curricular experience related to their first-year course that occurred within the RC. This finding seems at odds with the emphasis on faculty interactions found in the document analysis and with the literature on LLC best practices, which evidence a strong collaboration between academic affairs and residence life.

Moreover, the team found that the target population in the YFCY had more diverse peer interactions than their White, continuous-generation peers. This difference was of moderate practical significance ($g = .37$). The finding is not surprising as there are relatively few students of color and first-generation students; they are spread out throughout the RCs, which means they interact primarily with students that are not of their race/ethnicity and parental educational backgrounds while in these spaces. At a university where a majority of students are White and/or continuous-generation—many of whom are able to pay out of pocket for tuition—it is a given that these students will tend to interact with students who are of their similar background (Jack, 2019; Tatum, 2017). However, this can also have negative consequences for students of color who continuously have diverse interactions with students who may not have a similar cultural competence due to their limited exposure to others with different racial/ethnic backgrounds (Tatum, 2017). Thus, it is not surprising, again, to find that students of color and first-generation students had a more negative perception of the institutional climate. This finding was not only significant for three out of the four statistical tests using both surveys, but it also showed a moderate effect size ranging from $g = .43$ to $g = .50$. Both the document analysis and student interviews supported this finding. Although the institutional environment is not specifically designed as a component of the RC model, it can shape how students of color and first-generation student experience the RC system.

Finally, students of color and first-generation students expressed that physical space restrictions act as barriers to creating community. Although statistical tests revealed that these students' experiences of physical space were similar to the experiences of their White and continuous-generation peers, we do not find this to be cause for celebration. In the interviews, students were frustrated and disappointed they could not easily interact with friends residing in other RCs. Aside from the most recently-constructed residential complex, which contains common areas and group study rooms, students lamented the lack of community spaces and amenities in the residence halls.

2

To what extent do the RC model offerings align with the needs and desired outcomes by Model for students of color and first-generation students?

Qualitative interviews revealed that the RCs were largely irrelevant to students of color—with the notable exception of Ty, who reported that the RCs were at the heart of his positive experiences. Interestingly, student participants did not report particularly negative experiences; in fact, they reported that they were identifying the supports they need to succeed, making friends, and enjoying their experiences at Model. This mismatch between students' statements and the quantitative data implies that though students are generally enjoying their time at Model, the RC structure is not aligned with the needs that will help them achieve the university's desired outcomes (sense of belonging, affinity, satisfaction, and academic success). Across all interviews, there were indicators highlighting what the RCs could become at their best. There is a significant amount of anecdotal evidence suggesting that individual aspects of the RC model are benefiting students. What was lacking—which was primarily apparent when comparing the document analysis to students' reported experience of the RCs—was coordination and integration between elements of the RC structure. We believe this is reflected in the quantitative analysis by the fact that students of color and first-generation students did not have positive outputs compared to their peers.

The team noticed a theme of programming that lacked a connection to the curricular elements of the RC model. While students could describe only a limited number of co-curricular programs related to the first-year courses or their RC's identity, they appear to be seeking non-RC avenues to find community and meaning at Model. Several students reported participating in events outside of the RCs—intramural sports, club sports, cultural and identity-based programming, and Greek life. Another finding that emerged that was not specific to the RCs that could explain student participants' successful integration into the campus community was participation in Pre-Orientation activities. Pre-Orientation was an example of an existing structure that should be maintained in some form because it appears to be contributing significantly to students' sense of belonging and satisfaction—independent of their participation in the RCs. Pre-Orientation presents an exciting opportunity for Model to begin the best practice of integration with existing structures rather than operating independently of them.

It is clear that Model University's RC environment is not optimally designed to create a setting of success and support for students of color and first-generation students. While the target population is exposed to the same programming, resources, and environmental factors in the RCs as their peers, and in many cases has similar experiences as their peers, best practices suggest that Model University could better support the target population through: more intentional interaction with peers and faculty, fostering an inclusive institutional climate, connecting RC programming with academic success, and optimizing physical spaces. Additionally, students' perceived lack of faculty and staff interaction and support convey a need for additional financial resources. That these needs exist is indicative of a disconnect between Model's stated commitment to *all* students to increase belonging, engagement, and affinity through the RCs and the existing RC structure, design, and resources.

In addition to the aforementioned findings regarding the environment and outputs of the RCs, a wealth of data arose from the document analysis. Comparing institutional documents to the student interviews and the YFCY and NSSE survey data revealed several areas of misalignment between the stated goals of the RCs and the reality that students are living. Most notable was the abundance of references to faculty interactions compared to students' actual interaction (and in some cases, their confusion about who their faculty directors even were). Perhaps more surprising, however, was the overall lack of reference to goals, outcomes, or assessment. The present assessment has been conducted because Model is interested in understanding the impact their RCs are having on students of color and first-generation students. Despite this current interest, institutional documents about the RCs were almost completely devoid of references to three of the four outcomes stated in Model's request for assessment. While affinity was referenced fourteen times, satisfaction, sense of belonging, and academic success combined appeared only six times in the twenty-three documents. Using Inkelas et al.'s (2018) BPM framework, this lack of clearly defined goals—and therefore assessment methods by which to gauge progress—amounts to a pyramid with a crumbling foundation and no mortar. In the Recommendations section that follows, the team addresses findings from the student interviews and survey data as well as such deviances from best practice that were discovered primarily in the document analysis.

LIMITATIONS

The generalizability of the findings beyond this institution is limited by the nature of the project's design. The two surveys were administered to eligible students based on their classification (YFCY to all eligible first-year students and the NSSE to all eligible first year and

senior students) in the spring of the respective year (YFCY in 2017 and 2018 and NSSE in 2020). Thus, the sample is a non-random sample (Babbie, 2017).

The study also has several limitations to internal validity. Self-selection in responding to the surveys is a limitation, as non-respondents can have different characteristics and levels of participation in and engagement with the RC model. While the 2020 NSSE was administered after full implementation of the RC model in which students can be considered to have been randomly assigned into their RC communities, the self-selection of those responding to the survey must be considered for internal validity of the findings. For our qualitative methods, the low response rate to the invitation also limits the internal validity of our results. Our team was unable to interview self-identifying Hispanic or Latino/a/x students, which is one of the top three racial/ethnic groups represented at the institution. Additionally, first-generation student representation in our interview sample was low. There were several limitations inherent in the document analysis. In particular, the use of only publicly available documents limited the team to documents that were self-selected by university administration to convey a particular message to the community at large. Additionally, many internal details about the logistics of the model were not included in public documents. Finally, websites can become dated nearly as quickly as they go live; it is possible that not all documents used in this analysis represented the most current information available.

Our team was only able to use YFCY and NSSE institutional data for the project although we had planned to administer a survey we developed to measure, in particular, intellectual curiosity, ethnic identity development, engagement, psychological safety, and sense of belonging in the RC and at the institution using validated scales. However, due timing conflicts with other planned surveys to be administered by the institution, the team decide to use only the institutional data. This change affected our scale creation, as we had to rely on how the questions had been asked by the survey instruments, thus potentially creating an instrumentation threat to internal validity.

The final major limitation to internal validity is the effect of history on the population being interviewed and surveyed. Comparisons across the surveys and interviews must be interpreted with caution as historical events related to the COVID-19 pandemic, the resurgence of white-nationalism, and the social justice movements in the summer of 2020 have shaped and continue to shape the experiences of students on college campuses. Students interviewed have lived through the disruption the COVID-19 pandemic had on college campuses and the societal inequities exposed during this period, such as greater pandemic-related deaths in Black and

Brown communities and hate crimes against the Asian American communities (Harper, 2020). Although these topics did not emerge in conversations with students, the team is aware of the potential effects of these events on the students and their experiences at this institution and within the RCs.

RECOMMENDATIONS

The following pillars and their attendant recommendations are derived from the results of this study and the literature on LLCs (Altimare & Sheridan, 2016; Brower & Inkelas, 2010; Inkelas et al., 2007, 2008, 2018; Inkelas & Weisman, 2003; Purdie & Rosser, 2011; Stassen, 2003). They have been organized in order of criticality. The pillars should be addressed in the order presented to allow cascading impacts on each subsequent pillar. Utilizing Inkelas et al.'s (2018) pyramid as an illustration, the pillars can be thought of as starting from the foundation and building towards the pinnacle. Model University administrators will notice that some of these recommendations build upon the work of the prior team. Given that only a year has passed since those results were reported, action on some of their recommendations may not be visible in the data available to the current team. We reiterate and build upon these recommendations not to suggest that they have not been addressed but to reinforce their importance as Model continues to invest in the RC structure. Each pillar includes specific practical approaches based on the literature to implement the recommendation.

PILLAR ONE: CERTIFY RC GOALS AND OUTCOMES

Despite Model's efforts to envision and bring to fruition an RC system, results from the qualitative and quantitative analyses indicate that the previously defined goals are no longer providing a sufficiently solid base on which the system can flourish. "Because all other facets of the LLC's programming and the assessment plan should be based on the LLC's goals and objectives, they are *critically important* [emphasis added] to the foundation of the program and are thus the cornerstone of the BPM" (Inkelas et al., 2018, p. 18). Lacking an overarching vision, clear goals, intended outcomes, and an assessment plan to hold them together, no amount of resources will be sufficient to realize an RC system that meets the needs of students of color and first-generation students. It has been nearly a decade and three university Presidents since the RC goals were originally articulated. To ensure that Model's investment in its students sees appropriate returns, the administration should concentrate institutional support on redefining clear goals and outcomes for the RC system.

Formative and summative assessment of a program or initiative is essential for its success (Langley et al., 2009), but the document analysis found only one publicly available document describing the assessment plan for any aspect of the RC model. The importance of assessment is reflected in the Best Practices Model for LLCs framework (Inkelas et al., 2018), which suggests that programs be assessed for: “(a) the effectiveness of the discrete elements of [the] program, (b) the extent to which the LLC program’s elements are aligned with the program’s goals and objectives, and (c) the level of integration of the various elements to form a cohesive program” (p. 23). Formative and summative assessment will ensure good stewardship of the investments in the RC to guarantee they are effectively utilizing and allocating their resources.

Recommendation	Finding or Best Practice Addressed
<p>Define and commit to the goals of the RC model. The goals should be decided by a group of stakeholders including faculty, staff, students, and campus champions of students of color and first-generation students on campus.</p>	<ul style="list-style-type: none"> ▪ Clear goals are correlated with positive RC outcomes for students
<p>Determine outcomes by which progress towards the previously defined goals can be measured. Outcomes should flow logically from goals and should ideally be illustrated in a logic model, capability map, or other visual format that clearly depicts the relationships between Model’s vision, goals, outcomes, and assessment modes.</p>	<ul style="list-style-type: none"> ▪ Establishing and measuring outcomes will contribute to clear, overarching goals and alignment of goals and activities
<p>Create a formative and summative assessment plan with clear ownership by an individual, group, or office.</p> <ul style="list-style-type: none"> ▪ The team found two instruments in the literature that can be used for summative assessment of the goals of the RC model (as articulated in current publicly available documents): the NSLLP questionnaire (Inkelas et al., 2018) and Schreiner’s (2010) "Thriving Quotient." The Thriving Quotient, not used in this study, includes five different dimensions the team believes are in alignment with Model’s desired outcomes for the RCs. 	<ul style="list-style-type: none"> ▪ An assessment plan will allow Model to track individual student and overall institutional progress towards stated goals
<p>Widely communicate the vision, goals, and outcomes to internal and external stakeholders. Publication encourages accountability. It also provides an artifact that can be used in future assessment to understand how the vision, goals, and outcomes have changed over time.</p>	<ul style="list-style-type: none"> ▪ Students will better understand the RC goals and outcomes through strategic marketing and communications

PILLAR TWO: CLARIFY RC ROLES AND RESPONSIBILITIES FOR FACULTY AND STAFF

Among the attributes of the strongest living-learning programs, Brower and Inkelas (2010) found that the strongest LLCs in the NSLLP study were those with clear, well-defined roles for faculty and staff. Qualitative findings suggest that the roles and responsibilities for RC faculty and staff in Model's RCs are vague and unclear to students. In particular, the role of the faculty director as the leader of the RC should be clarified. As previously reported, most of the students in our qualitative sample did not have a clear understanding of who their faculty director was or when they would interact with them. In fact, two students conflated the live-in residential staff with their faculty directors. Another student lacked an understanding of who to contact for questions or requests about their facilities. Documents analyzed for the present study did not include any clear description of the roles and responsibilities of faculty and staff involved in the RC model. In addition, research shows that it is critical to clarify and document roles and responsibilities within an LLC to strengthen its infrastructure (Inkelas et al., 2018).

Recommendation	Finding or Best Practice Addressed
<p>Assess existing RC positions and redefine roles as needed to align with the RC goals and outcomes. As part of this exercise, it may be helpful to complete a stakeholder analysis or responsibility map (e.g., RACI map) to solidify role definition.</p>	<ul style="list-style-type: none"> Academic Affairs/Student Affairs collaboration is foundational to successful LLCs
<p>Update job descriptions for all RC positions to guide personnel objectives and align with the RC's goals.</p>	<ul style="list-style-type: none"> Role definition will help optimize faculty and staff time for their most important tasks
<p>Broadly and transparently communicate the roles and responsibilities of RC faculty and staff to students through their established website, RC newsletters, social media, flyers, orientations, and admissions materials.</p>	<ul style="list-style-type: none"> Student recognition of community resources lends to a more academically supportive climate

PILLAR THREE: ADDRESS BARRIERS TO STUDENT INTERACTIONS

Model University has showed a high investment on capital projects and is in the process of raising funds for a new facility. This emphasis on capital projects is commendable as it evidences the high priority placed on the RCs by all institutional stakeholders—from the board of trustees to faculty and staff who interact with students in the residence halls. The team found two different types of barriers to peer interactions that stemmed from policies and processes associated with the physical spaces of the RCs: the lack of mobility between residence halls and the assignment process. The interviews provided considerable insight into students' experiences of the space—in particular, the difficulty of interacting socially with peers from different RCs. While students of color and first-generation students had similar satisfaction with the residence hall facilities (as rated in the quantitative surveys), interviews revealed that students are frustrated with their inability to socialize beyond their residence hall cluster. Additionally, the room assignment process may present another barrier to students studying with each other. Currently, once students are assigned to an RC, they are randomly assigned to a room. As a result, they may room and primarily interact with students who are not part of their first-year course. It is a best practice that students in LLCs are housed in close proximity and around a common goal, academic interest, or theme (Inkelas et al., 2007; Love, 2012).

Recommendation	Finding or Best Practice Addressed
<p>Modify first-year course assignment process to be grouped by discipline, theme, or identity in the same buildings or on the same floor (to the extent possible).</p>	<ul style="list-style-type: none"> ▪ Students in LLCs grouped by interest thrive both in- and outside of their communities (Inkelas et al., 2018; Smith, 2018).
<p>Consider modifying the key card policy to allow students to enter common spaces of buildings outside of their RC cluster. Engage legal counsel and Student Affairs professionals in the discussion. This will help students of color and first-generation students to engage with peers with whom they might share social identities.</p>	<ul style="list-style-type: none"> ▪ Peer-to-peer interactions improve student outcomes
<p>Consider creating first-year courses that are rooted in the exploration of social identity, which will organically collocate students with similar interest in the same residence hall or on the same floor. For students of color and first-generation students, this also provides safety and belonging in a community based on interest (Smith, 2018), whether the interest is academic or identity based.</p>	<ul style="list-style-type: none"> ▪ Most RCs are built around themes/interests or goals (i.e., college transition)

PILLAR FOUR: INCREASE FACULTY ENGAGEMENT WITH THE RCS

Interviews revealed students' experiences with their first-year courses within the RCs were variable depending on the course material and instructor. Some students recounted deeply meaningful interactions with their first-year course advisors or through first-year course programming, while others could not speak to any co-curricular programming associated with their first-year course at all.

Recommendation	Finding or Best Practice Addressed
<p>Offer more programming that is tailored to the first-year course within an established discipline to create a common interest and sense of belonging.</p>	<ul style="list-style-type: none"> ▪ Faculty/student interactions are correlated with positive student outcomes ▪ Co-curricular engagement is correlated with positive student outcomes ▪ Peer-to-peer academic interactions are correlated with positive student outcomes
<p>Align faculty engagement with RC vision and desired goals. Consider convening a working group to standardize the role of the faculty directors, first year course (FYC) faculty, and non-FYC faculty affiliates (i.e., assign responsibility for office hours, program offering cadence, requirements to teach first-year courses in RC spaces, frequency of student interaction, and mentoring).</p>	<ul style="list-style-type: none"> ▪ Faculty/student interactions are correlated with positive student outcomes
<p>Leverage faculty resources at the right time and for the right purpose (e.g., developing rich academic experiences, meeting with students one-on-one, mentoring, creating service-learning trips, etc.).</p>	<ul style="list-style-type: none"> ▪ Faculty/student interactions are correlated with positive student outcomes
<p>Create a staff position focused on faculty recruitment, engagement, and professional development. This position can help increase faculty participation, can help faculty develop meaningful experiences, and ensure faculty expertise is highlighted through different activities.</p>	<ul style="list-style-type: none"> ▪ Faculty/student interactions are correlated with positive student outcomes

PILLAR FIVE: CREATE FACULTY PARTICIPATION INCENTIVES

Student interview data revealed that faculty participation in the RCs, including participation by faculty directors and first-year course advisors, is inconsistent. Research shows that faculty interactions with students, especially in the context of an LLC, are critical to achieving positive student outcomes (Frazier & Eighmy, 2012; Inkelas et al., 2008, 2018; Stassen, 2003). To avoid taxing uncompensated or under-compensated faculty while increasing *meaningful* faculty participation, Model should carefully balance the roles and responsibilities of the faculty and residential staff (as discussed in Pillar Two) to ensure that faculty contribute to the RC model to weave the curricular aspects into the residence halls. Given the rigor of the promotion and tenure review process, early career faculty may be dissuaded from engaging with the RCs due to time constraints, while mid- and late career faculty may already feel overburdened with institutional service. Providing incentives for first-year course faculty and faculty affiliates is an important step towards recognizing the critical role that faculty play in the success of the RCs and further embedding faculty participation in the RC system.

Recommendation	Finding or Best Practice Addressed
Appropriately compensate faculty (dependent upon role) for their effort and engagement in the RC system.	<ul style="list-style-type: none"> ▪ Faculty/student interactions are correlated with positive student outcomes
Recognize faculty affiliate service to the RCs in the promotion and tenure process to encourage new faculty to become engaged with the system without penalizing them for time spent away from other activities (such as research) that are typically rewarded in the tenure system.	<ul style="list-style-type: none"> ▪ Faculty/student interactions are correlated with positive student outcomes
Create an annual award for faculty engagement with the Commons.	<ul style="list-style-type: none"> ▪ Faculty/student interactions are correlated with positive student outcomes

CONCLUSION

Overall, the results of this study support the prior team's (Huffines et al., 2021) findings about student sense of belonging. For students of color and first-generation students, we found few differences in most of the outcomes we tested in this analysis compared to the White and continuous peers; yet, in the outputs for which we did find statistically significant differences, students of color and first-generation students were at a disadvantage. The quantitative analysis confirmed that students of color and first-generation students have a lower sense of belonging than their White and continuous-generation counterparts. If one of the goals of the RC model is to create equitable student experiences for all students, then the RC's goals and aligned programming must prioritize these student populations.

We were heartened to discover that students are finding some satisfaction with and affinity for Model University—largely because of the people. The following quotes capture some students' thoughts about Model's community.

Amaya: I think that's definitely my favorite part is being in a college town where everyone knows that the college is part of this bigger community.

Mo: I think the best part of my experience is probably the people.

Eva: ...spending time with people that I care about.

Clearly, elements of the Model undergraduate experience—the students, faculty and staff, and local community; pre-orientation; academics; and non-RC programming—are necessary conditions to create a campus culture that fosters a flourishing RC model. However, without intentional integration into the RC structure, these individual elements cannot be leveraged to their maximum potential. Bensimon (2005) argues that institutional practices rather than student characteristics or pre-collegiate lived experiences empower or hinder the educational success of all students. Thus, creating spaces and environments that provide students with the sense that they belong is key for ensuring their academic and social success. Given the documented benefits of LLCs for all students, and for students of color and first-generation students in particular, Model University's continued investment in the RCs coupled with the recommendations above can maximize outcomes for the target populations.

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APPENDIX A: Literature Review

STUDENT INVOLVEMENT

Alexander Astin's foundational research on student involvement, regularly re-published since its original publication in 1984, posits that involvement is a simple but powerful measure by which researchers can understand "the amount of physical and psychological energy that the student devotes to the academic experience" (Astin, 1999, p. 518). The primary difference between involvement and other concepts previously in vogue (such as effort, time-on-task, or vigilance) is the emphasis on student behavior. Involvement, when conceived of as the ongoing and active choice to invest time and resources in educational activities, emphasizes the importance of motivating students to engage in activities related to learning (Astin, 1999). This has encouraging implications for programs and policies beyond classroom pedagogy; Astin found that "nearly all forms of student involvement are associated with greater than average changes in entering freshman characteristics," such as competency and self-esteem (p. 524). In particular, the study found that frequent student interaction with faculty members was a critical form of involvement associated with higher satisfaction with the institution, courses offered, and even peer friendship (Astin, 1999).

Building on Astin's involvement research as well as good teaching practices (Chickering & Gamson, 1987), George Kuh and colleagues developed the National Survey of Student Engagement (NSSE) to investigate the extent of student engagement with meaningful educational practices (Kuh, 2001). Kuh's (2008) research identified 11 practices to enhance student engagement; among these practices are first-year seminars and learning communities.

STUDENT ENGAGEMENT AND HIGH-IMPACT PRACTICES (HIPS)

Using data from early years of the NSSE, Kuh and colleagues concluded that some educational activities—including but not limited to learning communities, first-year seminars, research with faculty, and study abroad experiences—had an especially strong effect on students' personal development and were associated with "deep approaches to learning" (National Survey of Student Engagement, 2007, p. 13). These so-called "high-impact practices" have been widely espoused among scholars and practitioners due to their correlation with four essential learning outcomes: 1) knowledge of human cultures and the physical and natural world, 2) intellectual and practical skills, 3) personal and social responsibility, and 4) integrative and applied learning (Kuh, 2008).

Of particular interest for the present study are first-year seminars and experiences. With their intentional focus on critical thinking, writing, and collaborative learning, first-year seminars and experiences have a strong impact on strengthening intellectual and practical skills. Given Model University's interest in learning about students of color and first-generation students, Kuh's research on high-impact practices is especially relevant because NSSE data indicates that "historically underserved students tend to benefit *more* from engaging in educational [sic] purposeful activities than majority students" (Kuh, 2008, p. 17). These findings suggest that while first-year seminars and other high-impact practices benefit all students by engaging them in meaningful educational activities, minoritized populations stand to benefit from participation.

LEARNING COMMUNITIES

Wide adoption of learning communities as a strategy for facilitating learning, engagement, and retention has been prevalent from community colleges to highly selective private universities due to increased public accountability for positive learning outcomes and the benefits of focusing on the student experience outside of the classroom (Love, 2012; O'Hara, 2001). Residential colleges are the oldest model of learning communities and were developed at the Universities of Oxford and Cambridge in the 12th and 13th centuries (O'Hara, 2001). Renewed interest in learning communities emerged at the end of the 20th century because of the changing demographics of students on college campuses and the public debate on the value of higher education as costs increased (Love, 2012). Universities sought to utilize learning communities to add value to the educational experience and support the needs of increasingly diverse student populations. While these programs have been gaining interest since the 1980s (Browne & Minnick, 2005), increased attention on learning communities and how these enhance the undergraduate experience has been driven by two national studies--the National Study of Living Learning Programs (NSLLP) in 2007 and Kuh's (2008) previously referenced report on high impact practices using NSSE data.

The term "learning communities" encompasses a variety of models. At their core, all learning communities leverage shared and connected learning across a group of students (Pascarella & Terenzinni, 2005 as cited in Mayhew et al., 2016). Learning communities can center on academic interests, linked courses, transitioning to college, or more generally integrating learning into the residential space (Brower & Inkelas, 2010; Shapiro & Levine, 1999). The latter type of learning community is often referred to as a living-learning community (LLC) (Inkelas & Weisman, 2003), and is the framework employed at Model University.

Living Learning Communities (LLCs) are programs in which undergraduate students living in a residence hall participate in academic and co-curricular activities designed specifically for those students (Inkelas et al., 2007). LLCs have been categorized by structures and resources into three groups: a) small, limited resources, primarily residential life emphasis; b) medium, moderately resourced, student affairs/academic affairs combination; and c) large, comprehensively resourced, student affairs/academic affairs collaboration (Inkelas et al., 2008). LLCs have also been categorized by programmatic themes into 17 separate foci (Brower & Inkelas, 2010; Inkelas et al., 2007). This wide range of foci differentiates LLCs depending on the institution type, student population, and unique culture and climate of each campus. The 2007 NSLLP study identified the practices of LLCs associated with positive learning outcomes, including peer interactions in the forms of study groups, academic discussions with peers, social and cultural discussions with peers, course-related faculty interactions, and an academically and socially supportive residence hall climate. The authors also found evidence that LLCs with clear, well-defined roles for faculty and staff, adequate communication between staff and faculty, and clear outcomes and goals with a “strong academic focus,” leveraging all opportunities in the community for learning were those that showed optimal gains for students (Brower & Inkelas, 2010).

The myriad designs, structures, and goals of LLCs reflect the variable effects these programs have on student participants (Eidum et al., 2020; Inkelas et al., 2007; Inkelas & Weisman, 2003; Stassen, 2003). LLCs have been examined and assessed using different theoretical frameworks such as Astin’s Student Involvement Theory, Tinto’s Student Departure Theory, and Kuh’s High-Impact Practices (Jessup-Anger, 2015; Love, 2012). Using these frameworks, scholars have found learning communities and LLCs to have positive effects on student academic and social outcomes.

MEASURES OF ACADEMIC SUCCESS

National or multi-institutional studies show a relationship between participation in an LLC and positive academic outcomes. Academic outcomes studies have varied from focusing on retention and GPA to analyzing critical thinking and an appreciation for liberal learning. For example, Mayhew et al. (2016) reviewed national and multi-institutional studies of LLCs and found these programs showed gains in general education. Using NSLLP study data, Brower and Inkelas (2010) found critical thinking skills, application of knowledge to new settings, and greater academic adjustment to be among the positive learning outcomes of LLC participation. Using the same dataset, Inkelas et al. (2008) found LLCs with certain structures and supports

had stronger student self-reported learning outcomes for growth in critical thinking, growth in cognitive complexity, and appreciation for liberal learning. The LLCs examined by Inkelas et al. (2008) and Brower and Inkelas (2010) included large, comprehensively resourced programs with strong academic and student affairs collaborations, as well as small, residential life-based programs. Again, purpose and structure combined to foster the desired environment to integrate living and learning.

Studies comparing different types of LLCs at one institution have also showed positive effects on academic measures of success, although several studies reported mixed findings. Anderson and Blankenberger (2020) evaluated a group of three LLCs each designed to improve the academic outcomes of first-generation students, low-income students, and students of color at the same public regional university in the Midwest. Using linear regression, the authors found the interpersonal validation scores for students who participated in the LLCs had a significant positive association with retention in the third semester (Exp $\beta = 1.06$, $p < .01$), as well as with GPA in both the third and sixth semesters when compared to their matched group peers (Standardized $\beta = .11$, $p < .001$ and Standardized $\beta = .12$, $p < .001$, respectively). However, the authors found that only the LLC for high-achieving students, which was by invitation only, was associated with retention for the seventh semester (Exp $\beta = .51$, $p < .01$), and only the LLC designed for first-generation students was associated with slight positive increase in GPA (Standardized $\beta = .11$, $p < .01$). Likewise, Purdie and Rosser (2011) utilized institutional data to compare the GPA and retention of students in an academic-themed freshman interest group LLC to students in an LLC linked to a first-year experience course at a large Midwestern research intensive university. After controlling for independent variables, the authors found a statistically significant, yet small increase in GPA (standardized $\beta = .02$, $p < .01$), and an increase in retention (standardized $\beta = 1.18$, $p < .05$) for only the LLC designed as a freshman interest group.

Inkelas and Weisman (2003) compared three LLCs designed with different objectives—Transition, Honors, and Curriculum-based—at a highly competitive research institution. The authors found significant differences in the student self-reported preference and enjoyment of academic pursuits and openness to learning different perspectives. Not only were the outcomes significant when compared with the control group, the outcomes mirrored the objectives for each program. Finally, Stassen (2003) examined three LLC models with different missions and structures on academic performance and one-year retention, among other outcomes. The study at a large, moderately selective public Research I university has a residential academic program (students live in residence hall and enroll in one first-year writing

course), a talent advance placement learning community based on 13 majors in different disciplines, and an honors college learning community. For first-semester GPA, participation in an LLC cohort had a positive significant effect at the $p < .05$ confidence level although the talent and residential programs showed stronger effects than the honors program after controlling for entering characteristics. However, the authors found mixed results for the three LLCs on one-year retention for the two cohorts they examined. The three LLCs showed a positive and strong relationship with one-year retention for the 1999 cohort; yet only the residential program had a significant finding for the 2000 cohort. One challenge of single-institution or single-program studies is that the implementation of the program, especially if the study is an impact study, is not often considered or described. Therefore, mixed or null findings can be an indication of poor implementation rather than ineffectiveness of the intended program (Gerstner & Finney, 2013).

Studies that examined a single program at one institution also provide support for the effect of LLCs on academic student outcomes. In their descriptive study of IMPACT: Integrating Moral Principles and Critical Thinking, Browne, and Minnick (2005) reported IMPACT students had high moral reasoning skills as measured by the Defining Issues Test and, when compared to their non-LLC peers, IMPACT students scored higher in their critical thinking scores using the Ennis-Weir Critical Thinking Test. Unfortunately, the descriptive single-program study did not provide the statistical significance of the differences. Conefrey (2021) also found an increase of students' self-appraisal of their academic abilities investigating how learning communities and other high-impact practices, such as writing seminars and ePortfolio, affect the experience of first-generation students at a four-year private liberal arts college through a qualitative study. Students became more confident of their academic abilities and were able to integrate their learning from other courses and co-curricular experiences as part of their ePortfolio. Finally, Maltby et al. (2016) examined the long-term effects of LLC participation for underrepresented minority students and first-generation students in the Women in Science and Engineering Residence Program (WISE RP) at the University of Michigan (Maltby et al., 2016). Using a matched control design, the authors found significant long-term effects for LLC students of color and first-generation students on their likelihood of receiving an undergraduate degree in a STEM-related field (23% higher for first-generation and 31% higher for underrepresented minority students, $p < .05$). The authors also found that underrepresented minority students in the LLC attained an MS in Science and graduate degrees in Science at higher rates than their matched comparison groups (11% higher attainment in Master of Science degrees and 16% higher attainment in graduate degrees in Science, $p < .05$).

In sum, the benefits of LLC participation on academic student success are evident based on the examination of the literature. LLC programs foster environments where students can flourish and gain confidence in their academic abilities; however, the purpose, structure and resources influence program effects. In the next section we discuss LLC benefits to social integration.

MEASURES OF SOCIAL INVOLVEMENT

As with academic measures of success, national or multi-institutional studies have found LLC participation is related to higher scores for peer and faculty interactions, academically and socially supportive perceptions of the residence hall environment, and positive peer interactions (Inkelas et al., 2007; Mayhew et al., 2016). Brower and Inkelas (2010) found a greater commitment to civic engagement and greater academic and social adjustment for students who participated in LLCs. The 2007 NSLLP study also identified the LLC practices that are associated with these outcomes, including peer interactions in the forms of study groups, academic discussions with peers, social and cultural discussion with peers, course-related faculty interactions, and academically and socially supportive residence hall climate (Brower & Inkelas, 2010).

Single program studies also showed positive associations with LLC participation. Conefrey (2021) found that LLC participation combined with other high-impact practices, such as writing seminars and ePortfolio, have a cumulative impact on students' sense of engagement on campus and their self-efficacy. In the study of the IMPACT program mentioned in the section above, Browne and Minnick (2005) also found that the program participants reported working greater to meet faculty expectations, discussing readings in class with peers outside of class and working outside of class with faculty when comparing IMPACT students to students who were not in the program using the NSSE.

Lastly, studies comparing two or more programs at a single institution found statistically significant associations with social and academic adjustment. Inkelas and Weisman (2003) found significant differences in the outcomes related to social and academic adjustment for participation in three LLCs focused on transitioning to college, supporting high-achievers, and pursuing an academic theme. These outcomes were significant when compared to the control group and outcomes were stronger when based on the intended objectives of the program. Comparing an art themed LLC and a random assignment residence hall community, Smith (2018) found the LLC helped students develop internal social relationships that facilitated

additional co-curricular engagement with the larger campus community. Through the qualitative interviews, the author found that students self-selected into the LLC because they were seeking to connect with students who had similar interest. Although participation in the LLC did not show a significant effect on facilitating closer networks of students, the author found that high values of closeness were related to second-semester co-curricular engagement on campus ($b = 12.98, p < .05$). In their study of an LLC at Kansas State University, Priest et al. (2016) found that social connections were the most meaningful elements of LLC participants' experiences, including relationships with other students, faculty, and other instructors involved in the LLC. "Simply put, to be successful, the experience of community must be emphasized in design and delivery of such programs. Creating the structure of common courses does not automatically foster community; the experience of community is negotiated through social relationships" (Priest et al., 2016, p. 370). Engstrom and Tinto (2008) also describe this social phenomenon beyond structural changes.

Additionally, LLC participation is associated with higher levels of student satisfaction. Frazier and Eighmy (2012) studied three themed LLCs within an upper Midwest university; one community was themed around wellness and the other two communities were based on academic majors of pharmacy and engineering/architecture. The authors found the two academic-themed programs showed significant positive differences in satisfaction. Specifically, the LLCs significantly differed in "building relations with other students in major" (Pharmacy mean diff. = .839 and Engineering/Architecture mean diff. = 0.905, both at $p < .001$) and having a "positive learning experience" (Pharmacy mean diff. = .369, $p < .003$ and Engineering/Architecture mean diff. = 0.386, both at $p < .005$). Through interviews with faculty, staff, and students, the authors found students' level of satisfaction were positively related to the level of interaction with faculty and staff built into the design of the program. Therefore, the LLCs with more intentional interactions with faculty and staff showed higher levels of student satisfaction in students' residence hall experiences.

STUDENTS OF COLOR AND FIRST-GENERATION STUDENTS

National and multi-institutional studies reveal that first-generation students are beneficiaries of LLC environments. For example, first-generation students' transition to college was aided by an academically and socially supportive residence hall climate and the use of resources available through the residence halls (Inkelas et al., 2007). Other studies show that LLCs increased first-generation student's GPA (Anderson & Blankenberger, 2020) as well as sense of engagement and self-efficacy when combined with other high impact practices

(Conefrey, 2021). First-generation students often lack the cultural capital that continuous-generation students have based on their parents' or guardians' experiences navigating a higher education environment. While not specific to first-generation students, Sinclair et al. (2016) explore the role of cultural capital and first-year student persistence in residential colleges, a form of learning community. After outlining the logic behind the indirect relationship of cultural capital on student persistence presented in *Rethinking College Student Persistence* (Braxton et al., 2014), the authors describe one approach is to encourage social interactions through residential education programming to build the cultural capital of their students. The LLCs are designed to create and maximize these types of interactions. Using the Thriving Quotient scale, Eidum et al. (2020) found first-generation students had a positive correlation ($p < .05$) with academic determination, diverse citizenship, and positive perspective, but exhibited a negative significant correlation with the social connectedness dimension of thriving.

Conversely, national and multi-institutional studies that incorporate various types of LLCs have mixed results of LLC participation and benefits for students of color. A recent multi-institutional study of LLCs at four institutions (two private and two public) showed significant negative correlations for Asian and South Asian students for engaged learning (Eidum et al., 2020). The authors also found negative significant correlations with academic determination for Hispanic/Latino/a/x, Asian, and South Asian students, and a significant negative correlation for positive perspective for Asian students. Asian students also had a negative significant total thriving score which can be explained by the negative significant findings for three of the five dimensions of thriving. Native American and Middle Eastern students did not show any significant correlations (Eidum et al., 2020). Bensimon (2005) argues that institutional practices empower or hinder the educational success of all students, not the students' demographics or lived experiences they bring with them to colleges or universities. Thus, creating spaces and environments that provide students with the sense that they belong in these spaces is key for ensuring their academic and social success.

DEFINING SENSE OF BELONGING

Abraham Maslow's seminal doctrine of human motivation situates belonging prominently within a hierarchy of needs to initiate self-actualization and flourishing (Maslow, 1943, 1954, 1968). The concept of human belonging has been examined across multiple disciplines and practical fields, building a wide body of literature that is multifaceted and nuanced (Ellison & Braxton, n.d.). With the massification of higher education in the United States, multiple scholars have examined sense of belonging for college students (Ellison & Braxton, n.d.; Hoffman et al., 2002; Hurtado & Carter, 1997; Mayhew et al., 2016; Pascarella &

Terenzini, 2005; Strayhorn, 2019; Tinto, 1993; Tovar & Simon, 2010). As it pertains to the college-going population, Strayhorn echoes Maslow's belief that sense of belonging is a universal need required by all individuals, offering an interpretation of sense of belonging that is particularly relevant in assessing the needs of first-generation and students of color at Model University.

Strayhorn (2019) asserts that sense of belonging motivates college student behavior – both beneficial and harmful: students may join an organization to increase sense of belonging, but they may also withstand dangerous or humiliating hazing in hopes of belonging. Strayhorn (2019) explains that sense of belonging is contextual and temporal. As a result, the traditional college age student in late adolescence exploring their identity may have a heightened need to belong. This key nuance is critical in understanding sense of belonging for marginalized students, who also are more likely to feel alienated, and therefore have an enhanced desire for belonging. Strayhorn also notes that sense of belonging is space and place dependent – students may have a sense of belonging in the classroom but feel alienated in their residence hall or vice versa. Finally, Strayhorn emphasizes that sense of belonging leads to positive outcomes, such as engagement, academic achievement, and wellbeing (Hagerty et al., 1992; Strayhorn, 2019).

SENSE OF BELONGING & MARGINALIZED STUDENT POPULATIONS

Research suggests that students with different identities and backgrounds can have very different perceptions of their campus climate (Reason & Rankin, 2006; Strayhorn, 2019). Using the National Survey of Hispanic Students, Hurtado and Carter (1997) analyzed Latino/a/x students' sense of belonging in college, finding that students who conversed with peers about coursework outside of class in their first and second years reported a higher sense of belonging in their third year. The authors also found that Latino/a/x students who participated in religious and social organizations in their first two years of college had a higher sense of belonging in year three. While not as strong, the authors found a significant positive relationship between participation in Greek life and student government and sense of belonging. Conversely, Latino/a/x students' perceptions of campus racism were associated with a lower sense of belonging (Hurtado & Carter, 1997).

Strayhorn (2019) illustrates that Black/African American male students who feel a sense of belonging in college through organizations, choirs, mentoring, or positive classroom experiences “earn better grades, assume campus leadership positions, and rate their college

experience satisfactory” (Strayhorn, 2019, p. 118). He also finds that sense of belonging for Black/African American males at predominantly white institutions (PWIs) is related to positive interactions with faculty and peers (both inside and outside of the classroom) and experiencing an inclusive campus racial climate.

Johnson et al. (2007) analyzed sense of belonging for 2,967 first-year students utilizing the National Study of Living-Learning Programs (NSLLP) survey data from 2004. The authors found that White students reported a greater sense of belonging as compared to Black/African American, Hispanic/Latino/a/x, and Asian Pacific American students, and that the perception of a supportive residence hall was strongly associated with belonging, especially for Asian Pacific American students. Additional predictors of sense of belonging included the students’ perception of the campus racial climate and their experience transitioning to college (Johnson et al., 2007).

Stebleton et al. (2014) examined sense of belonging for first-generation college students utilizing the 2009 Student Experience in the Research University survey, finding that first-generation students reported a lower sense of belonging and satisfaction as compared to their peers. In addition, the authors found that first-generation students suffered higher levels of stress and depression, and yet utilized campus mental health support services at lower rates.

SENSE OF BELONGING AS A CONDITION FOR COMMUNITY

It is evident that creating a sense of community has been a consistent goal for the RCs at Model University. Strayhorn (2019) argues that sense of belonging “is a precursor to community, and while closely related to community, it is not its exact equal; rather it is the feelings, perceptions, and mindsets that accompany gaining true membership in a community” (p. 16). Sense of belonging as a condition of community membership is also echoed by McMillan and Chavis (1986), where members are influenced by one another, and—under the right circumstances—the community can satisfy members’ needs and create a mutual emotional connection.

Given that sense of belonging is a precursor for community membership, it is important to review the literature on sense of belonging within learning communities on college campuses. Hoffman, Richmond, Morrow, and Salamone (2002) performed a qualitative assessment utilizing focus groups at the University of Rhode Island (URI) with the intent of developing and testing a sense of belonging scale to understand college persistence. The authors found that students in learning communities were more likely to develop peer and

faculty interactions that advanced student sense of belonging. Specifically, sense of belonging was higher for those students with peer relationships that helped them overcome environmental challenges, as well students who perceived that faculty cared about them as individuals (Hoffman et al., 2002).

One of the most noted characteristics that varies between students upon entry to college is cultural capital. A key revision to Braxton et al.'s (2014) theory of student persistence was the addition of cultural capital to the student entry characteristics and its indirect influence on psychosocial engagement. Cultural capital influences a student's social adjustment and their communal potential. This addition to the model has been found to be important for low-income students at highly selective institutions, as illustrated in Jack's (2019) research, which found that low-income students' cultural capital, learned through their participation in private, secondary boarding schools, increased their social and academic success at a private, liberal arts postsecondary institution. Building on Sinclair et al.'s (2016) finding that primarily residential institutions can provide access to activities and programming that increase students' cultural capital, the team believes that the additional intervention of a residential learning program—such as a living-learning community or residential college (Crisman, 2012)—will further enhance students' ability to increase their cultural capital as well as their psychosocial engagement. Sinclair et al. (2016) specifically recommend that schools offer credit-bearing learning communities for first-year students to guarantee opportunities for cultural enrichment. However, engagement for its own sake is generally not the end goal of a learning community.

STUDENT IDENTITY

Students' experiences of college vary greatly depending on a variety of factors, and for many students, their social identity is a particular salient one. Reason and Rankin (2006) found that students of color and LGBTQIA+ students, for example, experience lower sense of belonging and safety in university spaces compared to their peers who don't share those identities. Strayhorn (2019) describes sense of belonging as a student's understanding of their connection to others and their perceptions of being a valued member of the community as regarded by their peers, faculty, and staff. Consequently, students' perception of the campus environment and their own fit in that environment affects their involvement and interactions with other members of the community. These differing perceptions and interactions can lead to widely divergent student outcomes (Mayhew et al., 2016). To be effective, programming must consider the needs of students who hold marginalized identities. Creating an environment

where students can safely and meaningfully engage with their peers and faculty is one precondition of student success. Steele (2010) provides us with the language of “stereotype threat” to explain one way that students who hold marginalized identities are made to feel like outsiders. Reducing that threat and creating an environment of psychological safety is one important way that organizations have found to foster the ideal conditions for student engagement, integration, and success. Unfortunately, sense of belonging and psychological safety are difficult to cultivate and easy to destroy (Coyle, 2018). Therefore, institutions of higher education must be intentional in their efforts to create an environment that is psychologically and emotionally safe for all student identities (Rentería Mendoza et al., 2021).

APPENDIX B: INSTITUTIONAL QUESTIONS INCLUDED IN YOUR FIRST COLLEGE YEAR SURVEY

The institution included these questions in both 2017 and 2018 surveys.

Would you agree with the following statements?

[1=Strongly Agree, 2= Agree, 3=Evenly Mixed Opinion, 4=Disagree, 5=Strongly Disagree, 6=No Opinion]

OPTQ01. I have experienced a sense of community with the other students on my floor.

OPTQ02. The activities occurring on my floor or in my residence hall enriched my experience as a first-year student.

OPTQ03. I feel a sense of belonging in my residence hall.

OPTQ04. In the end, I was satisfied with the [first year course] I was assigned.

OPTQ05. I engaged in learning in my residence hall.

OPTQ06. There was a strong sense of community in my [first year course].

OPTQ07. I have a positive relationship with my [first year course] instructor/advisor.

OPTQ08. I got to know people who are different from me in my residence halls.

OPTQ09. I have felt supported by my [residence leader] this year.

OPTQ010. I enjoy spending time in the lounges and common spaces in my residence hall.

APPENDIX C: SCALES AND VARIABLES FOR QUANTITATIVE ANALYSIS CONSTRUCTS

TABLE C1

Scales and Variables for Environment Constructs

Environment	YFCY Variables	Alpha	NSSE Variables	Alpha
Peer interactions – Social	<p>Would you agree with the following?</p> <p><u>OPTQ02</u> The activities occurring on my floor or in my residence hall enriched my experience as a first-year student.</p> <p><u>OPTQ05</u> I engaged in learning in my residence hall.</p> <p><u>OPTQ08</u> I got to know people who are different from me in my residence halls.</p> <p><u>OPTQ09</u> I have felt supported by my residence leader this year.</p> <p>Since entering this college, how often have you interacted with the following people (e.g., by phone, e-mail, text, or in person):</p> <p><u>INTACT02</u> Close friend at this institution</p> <p>Since entering this college, indicate how often have you:</p> <p><u>CLSACT07</u> Had difficulty getting along with your roommate(s)/housemate(s)</p>	.73	<p>Indicate the quality of your interactions with the following people at your institution.</p> <p><u>QIstudent</u> Students</p>	Single variable
Peer interactions – Study	<p>Since entering this college, indicate how often have you:</p> <p><u>ACT31</u> Studied with other students</p>	Single variable	<p>During the current school year, about how often have you done the following?</p> <p><u>CLaskhelp</u> Asked another student to help you understand course material</p> <p><u>CLexplain</u> Explained course material to one or more students</p> <p><u>CLstudy</u> Prepared for exams by discussing or working through course material with other students</p>	.78
Faculty interactions outside of class	<p>Since entering this college, how often have you interacted with the following people (e.g., by phone, e-mail, text, or in person):</p>	.67	<p>During the current school year, about how often have you done the following?</p> <p><u>SFcareer</u> Talked about career plans with a faculty member</p> <p><u>SFotherwork</u> Worked with a faculty member on</p>	.76

	<p><u>INTACT01</u> Academic advisors/counselors</p> <p><u>INTACT05</u> Faculty during office hours</p> <p><u>INTACT06</u> Faculty outside of class or office hours</p> <p>Since entering this college, how often have you:</p> <p><u>ACT01</u> Asked a professor for advice after class</p> <p>Please indicate the extent to which you agree or disagree with the following statements:</p> <p><u>COLOPN01</u> At least one faculty member has taken an interest in my development</p> <p><u>COLOPN04</u> Faculty empower me to learn here</p> <p>Please rate your satisfaction with your college in each area:</p> <p><u>CMPSAT01</u> Amount of contact with faculty</p> <p>Since entering this college, how often have you utilized the following services:</p> <p><u>SERVICES08</u> Academic advising</p>		<p>activities other than coursework (committees, student groups, etc.)</p> <p><u>SFdiscuss</u> Discussed course topics, ideas, or concepts with a faculty member outside of class</p> <p><u>SFperform</u> Discussed your academic performance with a faculty member</p> <p>Indicate the quality of your interactions with the following people at your institution.</p> <p><u>Qlfaculty</u> Faculty</p>	
Staff interactions	<p>Please indicate the extent to which you agree or disagree with the following statements:</p> <p><u>COLOPN02</u> At least one staff member has taken an interest in my development</p>	Single variable	<p>Indicate the quality of your interactions with the following people at your institution.</p> <p><u>Qlstaff</u> Student services staff (career services, student activities, housing, etc.)</p>	Single variable
First-year course	<p>Would you agree with the following?</p> <p><u>OPTQ04</u> I was satisfied with my [first year course]</p> <p><u>OPTQ06</u> There was a strong sense of community in my [first year course]</p> <p><u>OPTQ07</u> I have a positive relationship with my [first year course] instructor/advisor</p>	.81		
Co-curricular involvement	<p>Since entering this college, how often have you:</p> <p><u>ACT25</u> Performed volunteer work</p> <p>Since entering this college have you:</p> <p><u>COLACT45</u> Joined a pre-professional or departmental club</p> <p><u>COLACT46</u> Participated in an undergraduate research program</p> <p><u>COLACT02</u> Been a leader in an organization</p> <p><u>COLACT21</u> Played club, intramural, or recreational sports</p> <p><u>COLACT17</u> Participated in student government</p> <p><u>COLACT15</u> Participated in leadership training</p> <p><u>COLACT28</u> Participated in an ethnic/racial student</p>		<p>Which of the following have you done or do you plan to do before you graduate?</p> <p><u>intern</u> Participate in an internship, co-op, field experience, student teaching, or clinical placement</p> <p><u>abroad</u> Participate in a study abroad program</p> <p><u>research</u> Work with a faculty member on a research project</p> <p><u>leader</u> Hold a formal leadership role in a student organization or group</p> <p><u>learncom</u> Participate in a learning community or some other formal program where groups of students take two or more classes together</p>	

	<p>organization <u>COLACT49</u> Participated in an LGBTQ organization <u>COLACT50</u> Participated in a women's advocacy group</p>		<p><u>capstone</u> Complete a culminating senior experience</p>	
Institutional climate	<p>Since entering this college, how often have you felt: <u>AFFACT12</u> Unsafe on this campus Please indicate the extent to which you agree or disagree with the following statements: <u>COLOPN20</u> I have felt discriminated against at this institution because of my race/ethnicity, gender/gender identity, sexual orientation, immigration/citizenship status, religion, or disability status <u>COLOPN44</u> There is a lot of racial tension on this campus <u>COLOPN48</u> In class, I have heard faculty express stereotypes based on race/ethnicity, gender, sexual orientation, religion, or disability status Please rate your satisfaction with your college in each area: <u>CMPSAT08</u> Racial/ethnic diversity of faculty <u>CMPSAT09</u> Racial/ethnic diversity of student body <u>CMPSAT17</u> Gender diversity of faculty <u>CMPSAT12</u> Respect for the expression of diverse beliefs <u>CMPSAT15</u> Administrative response to incidents of: Discrimination</p>	.82	<p>How much does your institution emphasize the following? <u>SEdiverse</u> Encouraging contact among students from different backgrounds (social, racial/ethnic, religious, etc.)</p>	Single variable
Residence hall climate	<p>Would you agree with the following? <u>OPTQ01</u>. I have experienced a sense of community with the other students on my floor. <u>OPTQ08</u>. I got to know people who are different from me in my residence halls. <u>OPTQ09</u>. I have felt supported by my residence leader this year. <u>OPTQ10</u>. I enjoy spending time in the lounges and common spaces in my residence hall.</p>	.78		
Diverse interactions	<p>To what extent have you experienced the following with students from a racial/ethnic group other than your own?</p>	.85	<p>During the current school year, about how often have you had discussions with people from the following groups?</p>	.75

	<p><u>ETHEXP02</u> Dined or shared a meal</p> <p><u>ETHEXP06</u> Had meaningful and honest discussions about race/ethnic relations outside of class</p> <p><u>ETHEXP08</u> Shared personal feelings and problems</p> <p><u>ETHEXP05</u> Had intellectual discussions outside of class</p> <p><u>ETHEXP09</u> Socialized or partied</p> <p><u>ETHEXP10</u> Studied or prepared for class</p> <p>Please indicate the extent to which you agree or disagree with the following statement:</p> <p><u>COLACT09</u> Had a roommate of a different race/ethnicity</p> <p>Since entering this college, how often have you:</p> <p><u>ACT42</u> Socialized with someone from another sexual orientation</p> <p>Would you agree with the following?</p> <p><u>OPTQ08</u> I got to know people who are different from me in my residence hall.</p>		<p><u>DDrace</u> People of a race or ethnicity other than your own</p> <p><u>DDeconomic</u> People from an economic background other than your own</p> <p><u>DDreligion</u> People with religious beliefs other than your own</p> <p><u>DDpolitical</u> People with political views other than your own</p>	
Space	<p>Please rate your satisfaction with your college in each area:</p> <p><u>SATIS21</u> Student housing (e.g., res halls)</p>	Single variable		

TABLE C2*Scales and Variables for Output Constructs*

Output	YFCY Variables	Alpha	NSSE Variables	Alpha
Academic transition	<p>Since entering this college, how has it been to:</p> <p><u>EASY9</u> Understand what your professors expect</p> <p><u>EASY6</u> Develop effective study skills</p> <p><u>EASY1</u> Adjust to the academic demands of college</p> <p><u>EASY8</u> Manage your time effectively of you academically</p>	.75	<p>How much does your institution emphasize the following?</p> <p><u>SEacademic</u> Providing support to help students succeed academically</p> <p><u>SElearnsup</u> Using learning support services (tutoring services, writing center, etc.)</p>	.71
Intellectual growth			<p>During the current school year, about how often have you done the following?</p> <p><u>RIntegrate</u> Combined ideas from different courses when completing assignments</p> <p><u>RInewview</u> Learned something that changed the way you understand an issue or concept</p> <p><u>RIdiverse</u> Included diverse perspectives (political, religious, racial/ethnic, gender, etc.) in course discussions or assignments</p> <p>How much has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas?</p> <p><u>pgcitizen</u> Being an informed and active citizen</p> <p><u>pgvalues</u> Developing or clarifying a personal code of values and ethics</p> <p><u>pgthink</u> Thinking critically and analytically</p> <p><u>pgothers</u> Working effectively with others</p>	.79
Confidence in academic skills	<p>Rate yourself on each of the following traits as compared with the average person your age. We want the most accurate estimate of how you see yourself.</p> <p><u>RATE02</u> Academic ability</p> <p><u>RATE20</u> Public speaking ability</p>	.80	<p>How much has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas?</p> <p><u>pgwrite</u> Writing clearly and effectively</p> <p><u>pgspeak</u> Speaking clearly and effectively</p> <p><u>pganalyze</u> Analyzing numerical and statistical</p>	.73

	<p><u>RATE23</u> Self-confidence (intellectual)</p> <p><u>RATE25</u> Writing ability</p> <p>How would you rate yourself in the following areas</p> <p><u>DIVRATE6</u> Critical thinking skills</p>		<p>information</p> <p><u>pgprobsolve</u> Solving complex real-world problems</p>	
Self-reported GPA	<p><u>CURRGPA</u> What is your overall grade average (as of your most recently completed academic term)?</p>	Single variable	<p><u>grades</u> What have most of your grades been up to now at this institution?</p>	Single variable
Sense of belonging in RC	<p>Would you agree with the following?</p> <p><u>OPTQ03</u> I feel a sense of belonging in my residence hall</p>	Single variable		
Overall sense of belonging	<p>Please indicate the extent to which you agree or disagree with the following statements:</p> <p><u>COLOPN27</u> I see myself as part of the campus community</p> <p><u>COLOPN16</u> I feel valued at this institution</p> <p><u>COLOPN14</u> I feel a sense of belonging to this campus</p> <p><u>COLOPN28</u> If asked I would recommend this college to others</p>	.89	<p>To what extent do you agree or disagree with the following statements?</p> <p><u>sbmyself</u> I feel comfortable being myself at this institution.</p> <p><u>sbvalued</u> I feel valued by this institution.</p> <p><u>sbcommunity</u> I feel like part of the community at this institution.</p> <p><u>sameinst</u> If you could start over, would you go to same institution you are now attending?</p>	.87
Overall satisfaction	<p>Please rate your satisfaction with your college in each area:</p> <p><u>SATIS25</u> Your overall academic experience</p> <p>Please rate your satisfaction with your college in each area:</p> <p><u>CMPSAT05</u> Overall college experience</p> <p><u>DO_OVER</u> If given the choice, would you still choose to enroll at your current (or most) recent college?</p>	.75	<p><u>evalexp</u> How would you evaluate your entire educational experience at this institution?</p>	Single variable
Affinity	<p><u>DO_OVER</u> If given the choice, would you still choose to enroll at your current (or most) recent college?</p>	Single variable	<p><u>sameinst</u> If you could start over, would you go to the same institution you are now attending?</p>	Single variable

APPENDIX D: Interview Protocol

This interview is being recorded; is that okay with you?

My name is _____. I am currently pursuing Doctor of Education degree in higher education leadership and policy at Vanderbilt University. As part of my culminating capstone project, I am conducting interviews with students like you to understand the experiences of Model students living in the [Residential Communities]. Specifically, my team and I are interviewing first- and second-year students to understand how the [Communities] helps students build community, develop a sense of belonging, and advance their academic goals at Model.

There are no right or wrong answers to these questions. However, if you don't feel comfortable responding, please let me know and I will move on to the next question. I am interested in hearing your candid feedback about your experience with and perception of the [Communities]. Your responses will be anonymous; however, University staff with access to student data may be able to identify you based on the details that you provide. Because we are committed to protecting your identity and your candid feedback, in our final paper we will use pseudonyms and include as few identifiable details as possible about each interviewee who is quoted.

Demographic Questions

- Tell us a little bit about yourself.
 - In which RC do you live?
 - What year are you?
 - If second year, do happen to know your GPA?
 - Where are you from?
 - Did your parents go to college?
 - What race/ethnicity do you self-identify with?

Programming

You mentioned you are part of X RC...

- How many programs does your RC host per month and how many would you say you attend?
- What has been your favorite program or event sponsored by the RC thus far? Why?
- Can you describe a RC event that has been connected with your [first-year seminar]?
 - Who led the event and what was it about? Prompt: How did your faculty member play a role...?

RC

- How did you meet your closest group of friends at Model?
- Tell us about a time that you attended a RC event when you connected with other students.
 - Tell us about any time at Model when you have felt connected with other students.
- Do you hang out with students who live in your RC outside of the RC?
 - Tell us why or why not?

Engagement

- Can you describe a time when you interacted with the faculty director of your RC?
- Can you describe a time when you interacted with other faculty outside of class?
- Do you find it helpful to attend office hours with your current faculty?
- How do you feel your experience in the RC has helped you participate in the larger Model community?
- Do you socialize more in the RC or outside of the RC? Why is that?
- What types of activities do you participate in outside of the RC with other students?

Affinity

- What does it mean to you to be part of the RC?
- Do you think you will continue to live in the RC next year? Why or why not? [for first-year]
- How often do you wear your RC T-shirt? Why or why not?

Students Needs

- How do you think your RC experience may help you with academics?
- Are there any things that the RC model is not providing you that would be helpful?
- Where do you feel the most comfortable on campus?
 - If not the RC, can you tell us why?
- What is the best part of your Model experience?
- What has been the most challenging part of your Model experience?

Finally, if you had to choose a name for your pseudonym, what would it be?

We are at the end of the interview. Do you have any questions for me?

If you would like a copy of your interview transcript, I would be happy to provide that for you.

Just email me.

Thank you for your time.

APPENDIX E: Document Analysis Details

TABLE E1

Descriptions of Documents Included in Document Analysis

ID	Year	Type	Primary Purpose	Primary Audience
1001	2019	Blogs	Informational	Families
1002	2019	Newspaper article	Marketing	Alumni
1003	n.d.	Map	Informational	All
1004	2003	Report	Persuasive	Internal Stakeholders
1005	2013	Report	Strategic	Internal Stakeholders
1006	2003	Webpage	Marketing	External Stakeholders
1007	2020	Report	Archival	Internal Stakeholders
1008	2019	Report	Informational	Internal Stakeholders
1009	n.d.	Webpage	Marketing	Students
1010	n.d.	Webpage	Marketing	Students
1011	n.d.	Webpage	Informational	Students
1012	2021	Newspaper article	Archival	Students
1013	2017	Newspaper article	Archival	Students
1014	2017	Newspaper article	Archival	Students
1015	2018	Newspaper article	Informational	Students
1016	2018	Newspaper article	Informational	Students
1017	2015	Newspaper article	Archival	Students
1018	2020	Newspaper article	Archival	Students
1019	2021	Newspaper article	Informational	Internal Stakeholders
1020	2021	Webpage	Informational	Internal Stakeholders
1021	2016	Newspaper article	Informational	Students
1022	2017	Newspaper article	Informational	Students
1023	2012-2022	Webpage	Archival	Internal Stakeholders

TABLE E2*Document Analysis Code Frequencies by Schema*

Environment Schema		Output Schema	
Code	Frequency	Code	Frequency
Peer Interaction	32	Affinity	14
Faculty Interaction	31	Academic Transition	5
Co-curricular Programming	29	Social Transition	5
Physical Space	28	Sense of Belonging	3
Diverse Interactions	25	Satisfaction	3
Staff Interaction	19	Perception of Academic Skills and Growth	2
First year course	13	GPA	0
Financial / Budgetary Support	9		
Extra-curricular Programming	9		

APPENDIX F: Detailed Results

ENVIRONMENT

PEER INTERACTIONS

Peer interaction was the most frequently occurring coded environmental variable, appearing 32 times across the 23 sampled documents. The intention to center peer interaction in the RC model is evident in early strategic and informational documents, which emphasize the programmatic (e.g., pre-orientation experiences) and structural (e.g., intentional housing assignment) ways that peer interaction would be encouraged to create community. The documentation also called out the importance of peer interaction across class years, with many informational documents noting Model's plans to foster interactions between students of all years through both programming and crafting of living options for the duration of the undergraduate experience.

Despite the institutional emphasis of peer interactions within the RC model, the YFCY set of analyses revealed that students of color studied with peers less ($M = 2.18$, $SD = 0.68$) than their White peers ($M = 2.42$, $SD = 0.58$), $t(128) = 2.03$, $p = .044$. Hedges' effect size value ($g = .39$) indicates the differences to be of moderate practical significance (Dodge, 2003). Our combined target population also had lower peer interactions related to academics ($M = 2.18$, $SD = 0.68$) than their White, continuous-generation peers ($M = 2.42$, $SD = 0.58$), $t(128) = 2.13$, $p = .035$. The difference also showed a moderate effect size value ($g = .39$) for practical significance. However, no statistically significant differences in engagement with peers in the academic dimension for students in the RC was evident in the NSSE dataset.

Student interviews were designed to explore students' peer interactions within and outside of the RCs and to allow students to describe the origin of their friendships and the significance of those relationships. A major theme emerged: five out of seven students reported developing close bonds with students in their RC but intentionally attributed those bonds to the proximity of peers in their suite or building and the convenience of developing relationships with co-located peers irrespective of their RC affiliation. Stella's response is representative: "I would say I socialized within where I live, which happens to be part of the RC. But it's more just because like proximity not so much like oh, you're a fellow Elm person. I don't find that uniting." Eva, however, qualified that her close friendships with suitemates may have been due, in part, to the COVID-19 pandemic:

“...so, the beginning of last year, we had to quarantine so it was pretty much through that. Like, we all had to spend a lot of our time together. And we couldn’t really spend time with other people. So that’s how we got close.”

The significance of students’ RC relationships was apparent given that five out of seven students also noted their RC friendships transcended the RC space through interactions at the library, dinner, playing intermural sports, exercising, attending identity-based programming (e.g., “African American type things”), or “go[ing] out together at night.”

Two students reported that their RC affiliation only helped them make acquaintances or “weak connections.” Stella’s quote is illustrative:

And these are people, the school's small, like I've seen them before, but I've never really spoken to them. Um, so it was just kind of like, I don't know, building, I don't call them weak connections, but like those acquaintance connections, I felt like its kind of strengthened that because now these are people were like, I don't really hang out with them, but if I see them at the dining hall, I'm not afraid to smile or say good morning, or stuff like that. There's no none of that awkwardness, because that moment sort of solidified, okay, you know, me and I know you. That was kind of the benefit.

Lavender, an outlier, noted that “...I don’t have that many friends within the Communities,” citing that “everybody has their own groups” and that “it could like feel uncomfortable to like, join” a group of peers in the RC.

When discussing interactions with non- RC peers, student interviewees revealed that participation in clubs and student organizations created pathways to meaningful peer interactions outside of the RC. However, students also perceived that the RC model was a significant barrier to connecting with non-RC peers due to the geographic distance between buildings and lack of cross-campus accessibility created by key-card restrictions. (Students can only enter residential buildings associated with their RC; to visit a residential building not associated with their RC, they have to be let in to that building’s RC. These restrictions are in place 24 hours a day.)

FACULTY AND STAFF INTERACTION

In the document analysis, faculty interaction was the second most frequently occurring coded theme, with 31 appearances across all documents. Building strong intellectual and

personal connections with faculty members was presented as central to the RC model, and this was reiterated in strategic and informational documents for all audiences. While interaction with faculty in the context of the first-year course was mentioned in many documents, most instances of faculty interactions referred specifically to the special access that students would have to faculty members in the RC model via living and working arrangements as well as co-curricular programming. Faculty interaction also appeared more implicitly in mentions of Model's low student-to-faculty ratio.

The emphasis placed in student interactions with faculty did not differ among our target population and their comparison groups. The team did not find statistically significant differences in level of faculty interaction of students of color and first-generation students compared to their peers in either the YFCY or NSSE data. The level of staff interactions between the target and comparison populations did not show a difference as well in neither data.

Yet, the team found that the level of student-faculty interaction in the student interviews was low. Student interviews were designed to explore the frequency and meaningfulness of students' interactions with the RC faculty/staff directors, first-year course faculty, and non-RC faculty outside of the classroom. Only two students identified a meaningful interaction with their faculty/staff RC director, while the remainder reported extremely limited interactions, including sending or receiving an email, waving, or exchanging a few words in passing. In fact, two students conflated live-in residential experience staff with their faculty/staff RC directors, referencing incorrectly that their faculty/staff directors lived with them in the RC.

However, Lavender's unique, meaningful experience with a faculty director is emblematic of Model University's goals for the RC:

While I was [at the RC event], I actually met one of the leaders for Willow, and [they] gave me this book called [omit name for anonymity] and we were able to have a whole conversation about it, which was really cool to have.

Students reported having more meaningful interactions with their first-year course faculty as compared to their faculty/staff directors. Ty, Stella, and Eva referred to their first-year course faculty as mentors. Ty noted:

But I do go to my [first-year course] professor a lot, and he's always the one that I go to for advising, academic advising. And, I felt like I got to know him even more on a personal level. So, I can open up to him a lot more than obviously other professors.

When prompted to discuss beyond the classroom interactions with non-RC faculty, most students discussed attending and benefitting from faculty office hours. Of note, when asked to describe an experience interacting with non-RC faculty outside of the class, Amaya, Mo, and NK brought up interacting with staff as opposed to faculty, including dining staff, janitorial staff, and the director of Model's cultural center. Mo recounted:

Um, honestly, I think the faculty I see the most on campus are probably the cleaning staff for [Maple House], they're super nice. Like, we actually love them. And they're so nice, we'll see them, stop and talk to them. Or we just, I don't know, they're just actually, nice to talk to you, not about anything in particular. But other faculty, honestly, I've only ever seen one of my professors on campus once, which is strange, because since it's a small college town you would assume you'd see them more, but like, you go out at restaurants, I've never seen faculty before.

INVOLVEMENT IN PROGRAMMING

Programming—both co- and extra-curricular—were popular themes in the document analysis, appearing a combined 38 times. Co-curricular programming appeared especially frequently in marketing and strategic documents written prior to implementation of the RC model. Many of these references were not explicit about what type of programming would be offered. For example, one document, an annual report, simply described plans to offer “co-curricular activities involving faculty, staff, and students” (Model University, 2020, p. 12). Although extra-curricular activities such as intramural sports did appear in the documents, the relative importance of co-curricular activities in the planning of the RC model was clearly communicated by the number of times they were coded relative to extra-curricular activities. Yet, the team did not find any statistically significant differences between groups in the level of involvement in co-curricular programming when analyzing the YFCY nor NSSE data.

Student interviews were designed to explore students' perceptions of and frequency of attendance at RC programming, including attending RC events and co-curricular programming associated with their first-year course. While all student respondents were aware of RC programming and could generally specify the programming cadence (e.g., one program per month), five out of seven students indicated they either do not attend or rarely attend RC programming. Mo stated “...in terms of events I actually attend, it's probably zero unless I happen to run into it. I mean, I've been to a couple I'd say I go to like, maybe once every two months, I go to one.” For those students who attended RC programming, a common draw was

the availability of food (e.g., s'mores, hot chocolate, pancakes) during low-stakes, social drop-in offerings.

The team observed a trend that many students prioritize non-RC extra-curricular experiences such as club sports or campus employment in lieu of attending RC programming. Stella described the strong bond that developed among her club sports team during their drives to practice and through the frequency of their interactions. Of the two students who reported receiving federal work study funding, Ty noted that work was his primary focus outside of attending class and homework.

So as part of my scholarship, to Model University, I am on a work study program. And I also have time to help with some financial stuff with my parents at home. And, so for the time, I'm not in school, or doing homework, I am most of the time at my job 15-16 hours per week, depending on how many shifts I can pick up that week. And, so that is, can be really straining, and by the time work is over, it's like late at night. So, I just wanted to grab a dinner, take a shower, you know, go to sleep.

Students thus prioritize the time they invested in work as well as co- and extra-curricular activities outside of the RC structure.

FIRST-YEAR COURSE

The most recent addition to the RC model is the first-year course. Thus, there were only 13 references to the first-year course integration in the document analysis. Most references to the first-year courses appeared in student newspaper articles, though this code also appeared in some strategic and informational documents. Very little detail about what types of courses would be offered, how faculty would be chosen to teach these courses, or how they would be used to assign students to residence halls, was provided in the documents. Overwhelmingly, references to first-year courses were to state that they would be offered and that students would be housed with their first-year course classmates.

Student interviews were designed to explore students' interactions with their first-year course faculty and associated co-curricular programming. When interviewees were prompted to discuss attending co-curricular programming, five out of seven students could not recall a program associated with their first-year course. However, Ty—who reported being too busy with campus employment to attend elective RC programming—described a meaningful experience

attending a program associated with his first-year seminar that connected students across RC buildings:

And so having, being able to sit down with some of the people in my RC, not necessarily even in my building, but just like other parts of the RC, just like other buildings and stuff and having that [...] heart to heart conversation with one another and seeing our perspective, because we all came from different backgrounds and so just hearing these perspectives really opened up, my mind a lot so that that has to be the most memorable thing that I remember.

One student—Amaya—did report that she met friends through her first-year course, and “everyone in your [first-year course] is in the same RC as you, so that kind of just helps meeting people in your RC.”

The NSSE survey did not include questions specific to engagement with the first-year course, so the team was unable to perform tests with this dataset. However, the team found no statistically significant differences in students’ perceptions of their first-year course in the YFCY data between students of color and White students nor between the combined group of students of color and first-generation students and their comparison group of White students and continuous-generation peers.

PERCEPTIONS OF RESIDENCE HALL, INSTITUTIONAL CLIMATE

The team conducted t-tests to compare perceptions of the residence hall climate between the target and comparison groups using the YFCY dataset only. These tests indicate similar perceptions of the residence hall climate between the two groups of students. However, there were statistically significant differences for all the groups in both datasets when comparing the groups’ perceptions of institutional climate. In the YFCY, students of color ($M = 2.85$, $SD = 0.71$) have a more negative perception of the institutional climate than their White peers ($M = 3.16$, $SD = 0.61$), $t(142) = 2.59$, $p = .011$. Hedges’ effect size ($g = .48$) indicates the differences to be of moderate practical significance. Similarly, the target population of students of color and first-generation students ($M = 2.87$, $SD = 0.70$) have a more negative perception of the institutional climate compared to their White, continuous-generation peers ($M = 3.15$, $SD = 0.61$), $t(142) = 2.43$, $p = .016$. The effect size for this difference is also moderate ($g = .44$). We saw similar results for the two groups of students in the NSSE dataset. Students of color ($M = 2.07$, $SD = .87$) have a more negative perception of the emphasis the institution placed on encouraging contact among students from different backgrounds than their White peers ($M =$

2.56, $SD = 1.02$), $t(164) = 2.76, p = .007$. Likewise, first-generation students reported a more negative perception ($M = 2.04, SD = 0.93$) when compared to their continuous-generation peers ($M = 2.50, SD = 1.00$), $t(162) = 2.10, p = .037$). The effect sizes for both are moderate to strong based on the Hedges' g value ($g = .50$ and $g = .43$, respectively).

Student interviews were designed to explore students' perceptions of institutional climate through questions about their comfortability on campus, their connections with peers and faculty, and their satisfaction with their Model University experience. Student interview responses pertaining to perceptions of institutional climate are mixed. The two students identifying as African American in our qualitative sample revealed either a level of discomfort socializing in their RC or within the classroom environment. Lavender, as previously referenced, does not feel comfortable socializing in her RC and lacked RC friends. In addition, when NK was asked to comment on where he felt "most comfortable on campus," he revealed: "I can't count the classroom cuz crazy stuff can always happen in the classroom. So that's not completely safe." When prompted for more detail, he responded that the classroom was "kind of out in the open and like, a lot of crazy stuff could potentially happen." In addition, three out of the seven students revealed feeling most comfortable in their room.

However, Amaya evidenced a positive perception of campus climate due to faculty inclusivity:

... there's a great effort made by faculty to make sure people feel comfortable in all spaces ... if you go to faculty, like, their offices or whatever those will have... signs and like, pride flag ... people like informing people of color, like informing people of like struggles, you know, just posters and stuff, which I think is very inclusive. And I do think that they make a great effort to make sure everyone does feel comfortable and there's always a big thing about, it doesn't matter who you are, you can go into any place like it's all open for you. So, I think it kind of just boils down to who you're with and, what kind of things you're doing rather than exactly where you are because everything is in a sense, equally as comforting.

A total of nine references to climate in residence halls or at the institution appeared in the document analysis. More than half of these references appeared in student newspaper articles, where students were quoted saying that the RC model was inclusive or that upcoming renovations would foster increased inclusivity. Strategic and informational documents referred to opportunities to improve the perception of Model's institutional excellence and to enhance

campus culture. However, one troubling reference to a race-related incident in a residence hall against Asian students was reported in the student newspaper. Neither the student newspaper articles nor the strategic documents provided specific details about how Model wanted its residence halls and larger campus to be perceived or how the institution would achieve those perceptions among students.

DIVERSE INTERACTIONS

For the diverse interactions variable, the team found mixed results. The NSSE dataset did not show statistically significant differences for students of color nor first-generation students in the number of diverse interactions they had. However, the YFCY tests found that the target population of this study ($M = 3.13$, $SD = 0.64$) has more diverse interactions than their White, continuous-generation peers ($M = 2.86$, $SD = 0.76$), $t(129) = 1.99$, $p = .049$. The difference is of moderate practical significance based on Hedges' effect size of $g = .37$. This finding is not surprising, given that students tend to interact with students who are like them, and Model is a primarily White institution (Tatum, 2017). However, this can also have negative consequences for students of color who continuously have diverse interactions with students who may not have a similar cultural competence due to their limited exposure to others with different racial/ethnic backgrounds (Tatum, 2017).

Student interviews were not designed to specifically explore whether students engaged in diverse interactions. However, two students described seeking out identity-based interactions and programming. As previously referenced, Ty described a meaningful experience associated with his first-year course when his peers engaged in a conversation highlighting "diverse perspectives."

The diverse interactions code appeared 25 times in the document analysis. Unlike other environment codes, it appeared at least once in every type of document. Notably, however, strategic, informational, and marketing documents generally avoided mentioning what kind of diversity was meant, referring instead to "persons different from themselves" (Model University, 2003) and "diverse community" (Model University, 2020). Articles from the student newspaper, which included quotes from current Model students, also shied away from explicit mention of what kind of diverse interactions were welcomed (e.g., "people on campus whom you normally wouldn't meet" [Model University, 2015]).

PHYSICAL SPACE

A t-test of YFCY data for satisfaction with residence halls did not reveal statistically significant differences between the target and comparison groups. The NSSE survey did not include questions specific to student satisfaction with physical space. However, physical space emerged as a major theme in the student interviews.

Student interviews suggested that the RC facilities are polarizing. Although our interview protocol did not specifically mention facilities, students were eager to discuss their rooms, buildings, and RC locations. Three students identified RC facilities as a barrier to peer interactions specifically because of Model University's policy to limit building access to a student's personal residence. Interview participants lamented the ability to interact and develop close bonds with students in a different RC due to key card restrictions. When discussing peer interactions, Eva noted that her building lacked a large enough shared space for socializing and RC programming. Two of the six students expressed an interest in changing RCs based on their dissatisfaction with facilities, including Lavender's disappointment with her desk, and NK's frustration with cleanliness: "On the second, third, and fourth floors everything is a pigsty, like literal pigsty. I would most likely switch which dorm to avoid that; it's a health hazard."

Conversely, some interview participants evidenced that the facilities enhanced their experiences in the RC, including Mo, who indicated his building was the "nicest building," inclusive of amenities that created a space for community. Of note, when discussing peer interactions, four out of seven students also identified the distance between buildings both within and across RC as a barrier, with multiple indications that social groupings may be concentrated among those who live either "up the hill" or "down the hill."

Physical space was a common theme in the document analysis, as well, appearing 28 times across all documents. Many of these appearances were in persuasive and strategic documents. Those documents made clear the need to raise funds for capital projects that would allow Model to improve its physical plant to accommodate the ambitious programming plans set out in those same documents. A common refrain in documents published prior to the implementation of the RC was the need to create common spaces, equipped with study rooms, social meeting space, and flexible-use swing spaces accessible to all undergraduates. Implementation of the RC model did not mark the end of such statements, however; some capital projects have been completed since the implementation of the RC model, but several large projects still remain, according to documents included in the analysis.

FINANCIAL/BUDGETARY SUPPORT

While the NSSE and YFCY datasets do not address questions regarding funding or budgetary support, a comparison between Model's audited financial statements and those of their self-reported peers shows that Model is in the bottom half on student services spending as a percentage of operating budget (Boyd et al., 2021). Between 2018 and 2021, Model spent an average of 1.12% of its total operating budget on student services. Comparing Model to its peers in the bottom half of student spending ($M = 1.13\%$, $SD = .22\%$) reveals that their spending is not significantly different from each other except for the outlying lowest-spending institution, which spends only 0.64% of its operating budget on student services (a result which is statistically significant at $p < 0.01$). Although none of Model's peer institutions included in this analysis publicly discloses residential life spending, the three institutions touting programs like Model's RCs spend almost three times more than Model, percentagewise, on student services (Boyd et al., 2021).

Student interviews were not designed to explore Model University's financial support of the RC; however, Stella identified that students' needs may be inadequately addressed by residential staff because of insufficient staffing, indicating students' perceptions of the financial implications for hiring additional staff. In addition, Ty suggested the limited interaction with his faculty director could be due to the high faculty-to-student ratio in the RC: "So maybe... it's not their fault or anything because there's like, what 2,000 of us, [and] there's like, five of them. So, it's not much you can do there."

Seven of the nine total references to financial or budgetary support for the RCs appeared in a strategic planning report. Many of these references were vague, calling for resources, though one document did specifically call for securing "endowment and annual funding" (Model University, 2013). Overall, it was evident that there was some recognition that the programmatic and structural goals of the RC model could not be achieved without appropriate funding, but very few specifics about this funding—timing, amount, specific expected uses—were provided.

OUTPUTS

COLLEGE TRANSITION (ACADEMIC AND SOCIAL)

Academic transition appeared only five times across all documents in the analysis. All five of the mentions appeared in strategic documents published before the RC model was implemented. As with several of the environmental themes, mentions of academic transition were also quite vague. One document referred to helping students “thrive emotionally and intellectually” (Model University, 2013) while another mentioned helping first-years “make the transition” into college (Model University, 2003). This second reference was coded as both academic and social transition in the analysis because it was unclear what Model meant by ‘transition.’ Social transition, like academic transition, was only coded five times across all documents in the analysis. The academic and social transition codes appeared together all five times because the documents mentioned “transition” without any clear detail that allowed the team to code specifically for academic or social transition.

When examining the academic transition scale, the team found mixed results. Analyses of the YFCY data found statistically significant results when comparing the academic transition scores of students of color ($M = 2.41$, $SD = 0.68$) to White students ($M = 2.84$, $SD = 0.52$) and when comparing the combined groups of students of color and first-generation students ($M = 2.43$, $SD = 0.68$) to their White, continuous-generation peers ($M = 2.84$, $SD = 0.52$), $t(134) = 3.93$, $p = .000$ and $t(134) = 3.80$, $p = .000$, respectively. This means that our target population has lower academic transition scores than their peers, with strong effect sizes ($g = .75$ and $g = .71$, respectively). Yet, the tests for the NSSE data did not reject the null hypothesis, thereby indicating similar academic transition experiences between students of color and first-generation students in the 2020 NSSE sample compared to their peers.

Student interviews were designed to explore students’ perceptions of how the RC may facilitate their academics and their social transition through inquiries about their peer interactions, engagement, comfortability, and satisfaction with Model University. Three of the students were unable to connect their RC experience to their academic transition in college. For example, Amaya noted “I feel like it really hasn’t impacted me academically and I don’t think it will because it’s more like, a social kind of grouping rather than like something that affects academics.” However, two students did recognize the value of the RC in supporting their academic journey, connecting their proximity to peers and classmates in the RC with the ability to ask questions about homework, form study groups, and discuss their first-year seminars. Ty

stated: “I have these people and I do study with a lot friends from my RC. We do have certain classes together. And if I don't know something, there's always someone within the RC that knows things I don't know.” While all students acknowledged the academic transition process, a general theme emerged that students either felt confident in their ability to navigate Model University’s academics or were adept at using support services, such as faculty office hours or a student success advisor to seek the necessary support to reach their academic goals.

We found mixed results about students’ social transitions. Tellingly, five out of seven students responded that either “the people” or their friends are the best part of their Model University experience. However, interviews also revealed evidence of students being lonely at times. Stella remarked that prior to making close friends at Model, she “spent a lot of time, like by myself,” which left her “feeling... alone with [her] thoughts a little too much.” Stella was able to navigate her social transition by connecting with her roommate and with students in her RC, eventually referring to them as “family.” Lavender, as previously referenced, also evidenced a level of discomfort socializing with RC peers but was able to develop close bonds with non-RC peers who she felt “embod[ied]” her.

PERCEPTION OF ACADEMIC SKILLS AND INTELLECTUAL GROWTH

Additionally, the team could not reject the null hypothesis for student’s intellectual growth scale and for students’ confidence in their academic skills in either dataset. Therefore, our target population and other students share similar perceptions of their intellectual growth and academic skills.

As mentioned previously (see academic transition) student interviews revealed that the students we interviewed feel confident in their academic abilities and utilized institutional support resources to facilitate academic growth. Interestingly, two students – Stella and Mo – suggested an initial uneasiness with Model University based on their perceptions that peers lacked academic and intellectual focus. However, both students indicated their initial concerns were mollified after seeing that people were “actually smart,” (Mo) “interesting,” (Mo) and “intellectually inclined” (Stella).

Perception of academic skills and growth was coded twice in a single strategic document published before the implementation of the RCs. One reference was to individual and advising activities that might require students to self-reflect on their “intellectual trajectory” (Model University, 2013). It appeared once more as an assessment item for understanding students’ personal growth, health, and wellness.

SELF-REPORTED GPA

In light of the previous finding, the team found statistically significant differences in both the YFCY and NSSE datasets for student's self-reported GPA. Students of color ($M = 5.54$, $SD = 1.71$) and the combined target population group ($M = 5.60$, $SD = 1.74$) in the YFCY dataset reported lower GPAs when compared to their peers ($M = 6.50$, $SD = 1.05$ and $M = 6.48$, $SD = 1.05$, $t(127) = 3.90$, $p = .000$ and $t(127) = 2.58$, $p = .000$, respectively). The effect size of the differences is moderate to strong based on Hedges' effect size value ($g = .74$ and $g = .68$, respectively). Likewise, first-generation students ($M = 5.76$, $SD = 1.56$) in the NSSE dataset also reported lower GPA than continuous-generation peers ($M = 6.71$, $SD = 1.00$) in the sample, $t(161) = 3.97$, $p = .000$. The effect size of the difference in the NSSE sample is very strong based on the Hedges' g value ($g = .86$). This finding for three of the four tests is surprising seeing that no statistical differences were found in student's perceptions of their intellectual growth, confidence in their academic skills, and their academic transition.

Student interviews were designed to collect data about second-year students' self-reported GPA. Given that we interviewed six first-year students and only one second-year student, we received limited information about students' self-reported GPAs.

There were no references to student GPA (self- or institutionally reported) in any of the documents in the document analysis.

SENSE OF BELONGING

Using the NSLLP scale for sense of belonging (SENSBEL) in the NSSE dataset, the team found no statistically significant differences for students of color nor first-generation students indicating that these students living in the RCs have similar overall sense of belonging in comparison to White students and continuous-generation students. A similar null-finding for the YFCY scale measuring sense of belonging in the residence hall reiterates this point. The significant findings that emerge from the YFCY dataset show a lower sense of belonging for students of color ($M = 2.78$, $SD = 0.74$) compared to White students ($M = 3.21$, $SD = 0.58$), $t(124) = 3.51$, $p = .001$. The difference in overall sense of belonging is greater when the first-generation students are combined with the students of color ($M = 2.76$, $SD = 0.74$) and compared to their White, continuous-generation peers ($M = 3.23$, $SD = 0.57$), $t(124) = 3.85$, $p = .000$. This comparison indicates that students in the target population experience lower degrees of sense of belonging than their Model University peers that are not members of the target population.

The effect size of these two differences is strong with the Hedges' value at $g = .68$ and $g = .74$, respectively.

Student interviews were designed to explore student's sense of belonging within the RCs and at Model University, at-large. Using students' reported engagement, satisfaction, affinity, and peer interactions as indicators of sense of belonging, we saw that while students may not perceive the RCs as the mechanism for their sense of belonging on campus, all students evidenced a sense of belonging at Model. Except for Ty, the RC was not reported to be the source of students' sense of belonging; however, these students reported finding a sense of belonging in other ways at Model, including through club sports, non-RC peer groups, Greek life, participating in student organizations, and through their academic and scholarly pursuits.

Sense of belonging appeared only three times in the document analysis—twice in student newspaper articles published during or after RC implementation and once in a strategic document published prior to implementation. Several documents referred to “community” but not to students' sense of belonging within that community. A single explicit reference to “sense of belonging” was found in a student newspaper article published during implementation when only some students were part of RCs.

SATISFACTION AND AFFINITY

While satisfaction was only coded three times across documents in the analysis, affinity was by far the most-used output code in the analysis, appearing 14 times. Affinity appeared in strategic documents, in the student newspaper, and on the public website describing the RCs. Creating a “lifelong connection” (Model University, 2013) to the institution was a common refrain. Building affinity also appeared alongside the intent to establish tradition (e.g., describing the RCs as a place where students “experience tradition...and where University affinity is cultivated” (Model University, 2020) and “establish identity and tradition” (Model University, 2013). Given that affinity was coded nearly three times more often than the second-most prevalent codes, the documents in this analysis clearly established the importance of creating institutional affinity as part of the RC model.

Yet looking at the survey data, the final two sets of t-tests for level of student satisfaction with their overall experience and student's affinity produced no statistically significant differences between the groups. Put differently, the two groups share similar degrees of overall satisfaction and affinity with Model.

Student interviews were designed to explore students' affinity with the RC through questions such as "What does it mean to you to be a part of the RC?" and "How often do you wear your RC t-shirts? Students' levels of affinity for their RC were low, except for a specific outlier. While Mo noted that "he couldn't tell you," what it means to be in the RC and Amaya responded that "it doesn't have that huge of an impact," Ty indicated that "being part of the RC is more like a sense of community." Not surprisingly, while most students remarked that their t-shirt satisfaction was based on the design and material versus having pride for their RC, Ty spoke to his affinity for the RC by reporting that his t-shirt gave him the "feeling of like, 'Hey, look at me. I'm part of this RC.'" However, Ty's evidence of clear affinity for Chestnut RC was not representative of the larger qualitative sample, within which students either held more affinity for their dorm or building irrespective of their RC or could not speak to their affinity for the RC at all.

APPENDIX G: T-Test Results

TABLE G1
Environment Two-sample t-test Results

	Your First College Year Combined ^a							
	Students of color				First-generation students and students of color			
	M	SD	t	df	M	SD	t	df
Peer interactions - academic	2.18	0.68	2.03*	128	2.18	0.68	2.13*	128
Peer interactions - social	4.04	1.30	-0.31	148	4.12	1.31	-0.88	148
Faculty interactions outside of class	2.95	0.73	-0.82	148	2.94	0.73	-0.71	148
Student services staff interactions	3.11	0.82	-0.59	124	3.05	0.88	1.09	124
First-year course	3.58	0.87	1.14	103	3.59	0.85	1.07	103
Co-curricular involvement	2.88	1.96	-1.44	112	2.91	1.94	-1.62	112
Diverse peer interactions	3.11	0.64	-1.80 ⁺	129	3.13	0.64	-1.99*	129
Institutional climate	2.85	0.71	2.59*	142	2.87	0.70	2.43*	142
Residence hall climate	3.05	1.11	0.60	103	3.07	1.10	0.51	103
Space	4.59	0.92	-0.05	136	4.60	0.91	-0.13	136
	National Survey of Student Engagement							
	Students of color				First-generation students			
	M	SD	t	df	M	SD	t	df
Peer interactions - academic	2.45	0.79	1.53	165	2.53	0.88	0.43	163
Peer interactions - social	5.14	1.51	1.39	164	5.04	1.57	1.46	162
Faculty interactions outside of class	2.69	0.46	0.97	164	2.72	0.58	0.41	162
Student services staff interactions	5.41	1.73	0.53	162	5.52	2.00	0.11	160
First-year course	-	-	-	-	-	-	-	-
Co-curricular involvement	4.24	1.62	0.03	162	4.21	1.56	0.09	160
Diverse peer interactions	3.15	0.61	-0.64	164	2.99	0.72	0.86	162
Institutional climate	2.07	0.87	2.76**	164	2.04	0.93	2.10*	162
Residence hall climate	-	-	-	-	-	-	-	-
Space	-	-	-	-	-	-	-	-

Note. M= Mean, SD = standard deviation, t = test statistic, and df = degrees of freedom.

^aYFCY Combined includes year 2017 and 2018 datasets

* $p < .01$, two-tailed. ** $p < .01$, two tailed. *** $p < .001$, two-tailed. ⁺ $p < .05$, one-tailed.

TABLE G2*Outputs Two-sample t-test Results*

	Your First College Year Combined ^b							
	Students of color				First-generation students and students of color			
	M	SD	t	df	M	SD	t	df
Academic transition	2.41	0.68	3.94***	134	2.43	0.68	3.80***	134
Intellectual growth	3.21	0.55	0.50	151	3.17	0.59	1.16	151
Confidence in academic skills	3.65	0.76	1.83+	135	3.67	0.77	1.58	135
Self-reported GPA ^a	5.54	1.71	3.90***	127	5.60	1.74	3.58**	127
Residence hall sense of belonging	2.65	1.32	1.20	100	2.67	1.30	1.17	100
Overall sense of belonging	2.78	0.74	3.51**	124	2.76	0.74	3.85***	124
Satisfaction	4.30	0.84	1.51	137	4.28	0.84	1.76 ⁺	137
Affinity	3.88	0.98	1.04	116	3.86	0.97	1.22	116

	National Survey of Student Engagement							
	Students of color				First-generation students			
	M	SD	t	df	M	SD	t	df
Academic transition	3.17	0.58	-0.51	164	3.20	0.68	-0.62	162
Intellectual growth	2.66	0.48	1.02	165	2.79	0.51	-0.52	163
Confidence in academic skills	2.45	0.56	0.73	164	2.47	0.56	0.36	162
Self-reported GPA ^a	6.44	1.53	0.89	163	5.76	1.56	3.97***	161
Residence hall sense of belonging	-	-	-	-	-	-	-	-
Overall sense of belonging	2.91	0.56	0.77	164	2.85	0.67	1.04	162
Satisfaction	3.17	0.57	0.42	164	3.10	0.63	0.83	162
Affinity	3.05	0.66	1.21	164	3.12	0.73	0.39	162

Note. M= Mean, SD = standard deviation, t = test statistic, and df = degrees of freedom

^aSelf-reported GPA is coded 1=C- or below to 8=A.

^bYFCY Combined includes year 2017 and 2018 datasets

* $p < .01$, two-tailed. ** $p < .01$, two-tailed. *** $p < .001$, two-tailed. ⁺ $p < .05$, one-tailed.