

# **SENSE OF BELONGING & ACADEMIC PERFORMANCE**

OUTCOMES FROM A  
RESIDENTIAL COMMONS MODEL

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# FOREWORD

This study was completed by three doctoral students in fulfillment of the requirements for the Doctor of Education degree from the Peabody College of Education and Human Development at Vanderbilt University in Nashville, Tennessee.

Our team would like to thank the administration, faculty, and students of Model University – we feel lucky to have been matched with this project and are grateful for the opportunity, trust, and support you put into us. We hope our findings and work help to further the cultivation of belonging and academic engagement in the context of Model's exceptional liberal arts experience.

We are deeply grateful for our all of our faculty over the past three years, but especially those who advised, encouraged, and challenged us through this capstone experience.

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For our families, friends, and cheering sections who stood by us, supported us, and gave us time when we needed it – thank you so much.

-SARAH, LIZ & WHITNEY

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# EXECUTIVE SUMMARY

Learning in a residential context has emerged as a high-impact practice that can lead to a high-quality post-secondary education. Through living-learning communities or intentional residential programming, institutions have focused their efforts on ensuring that all students experience greater student engagement and have ample opportunity for higher academic achievement. Model University has implemented just such a system. Their residential commons system, first implemented in 2015, was structured to support students' identity development, engagement with their community, and commitment to learning and growth.

The purpose of this research study was to examine to what extent participation in the residential commons system is associated with student engagement and academic success. More specifically, using a mixed methodological approach, our research examined the relationships between the residential commons, student sense of belonging, and academic engagement. Due to the degree of institutional investment necessary to sustain a residential commons system of this kind, this research was intended to provide senior leadership at Model University with a detailed assessment of the relationship between the commons system and students' sense of belonging, the relationship between the commons and students' academic performance, and the relationship between sense of belonging and academic performance. The qualitative methods of this study included interviews with faculty directors and university staff who work closely with the residential commons system and semi-structured focus groups with students. The quantitative data for this study was provided to us through Model University's Department of Institutional Research. The data chosen includes nationally administered student surveys: The National Survey of Student Engagement (NSSE), Your First College Year Survey (YFCY), and The Core Drug and Alcohol Survey (CORE). The data also includes administrative data: GPA, retention, and student conduct reports.

## OUR FIRST RESEARCH QUESTION ASKED: WHAT IS THE RELATIONSHIP BETWEEN THE RESIDENTIAL COMMONS SYSTEM AND A STUDENT'S SENSE OF BELONGING, AND IS THIS RELATIONSHIP DIFFERENT FOR DIFFERENT STUDENT GROUPS?

- In two different data sets, we found that there was a moderately sized and statistically significant negative relationship between commons affiliation and sense of belonging. That is, in the surveys available to us, freshmen in the commons reported a lower sense of belonging than those not in the commons.
- Although those who identified as African American or Hispanic, as well as those who would not go on to join Greek letter organizations, all reported a statistically significant lower sense of belonging overall (findings confirmed in the qualitative interviews), there was no observable difference in the relationship between commons affiliation and sense of belonging for any of the student groups of interest.

- While not directly linked to commons affiliation, alcohol consumption did have a positive relationship with sense of belonging, and students living in residence halls were more likely to believe that alcohol facilitates a sense of belonging. In the student conduct data available, there was an observable relationship between living in a commons affiliated building and drug and alcohol violations; however, this may be attributed to the fact that all freshmen in this data set were affiliated with a commons. Finally, Greek affiliation and gender predicted secondhand harms from others drinking. In focus groups, students and staff highlighted how deeply embedded alcohol is in the social culture at Model University.
- In interviews, Model students, by and large, did not report finding community or sense of belonging within the commons. Rather, they found community through academic programs or other student organizations available on campus. Staff highlighted a significant gap between students' experiences on the quad and experiences off the quad, gaps that exist partly because of a lack of common space and other perceived barriers to evening programming.

### OUR SECOND QUESTION ASKED: WHAT IS THE RELATIONSHIP BETWEEN THE RESIDENTIAL COMMONS SYSTEM AND ACADEMIC PERFORMANCE?

- Relationships between commons affiliation and academic success, operationalized as GPA and retention, were either mixed or not observable.
- There was no observable relationship between commons affiliation and academic engagement.

### OUR THIRD RESEARCH QUESTION ASKED: DOES A STUDENT'S SENSE OF BELONGING IN THE RESIDENTIAL COMMONS SYSTEM HAVE ANY RELATIONSHIP WITH ACADEMIC ENGAGEMENT?

- There was a small, positive, and statistically significant relationship between sense of belonging and academic engagement. However, that relationship was not observably different depending on commons affiliation.

Our analysis highlights several recommendations for policy and practice, including defining the overarching vision of the commons, leveraging faculty for their expertise, finding connection through partnership, building a four-year affinity through peer connection, supporting a culture focused on working hard and partying safely, mirroring on the quad investments to those off the quad, and critical assessment.

# INTRODUCTION

In the public imagination, residential colleges disproportionately represent popular conceptions of elite university life. Stone buildings around a quad, undergraduate coeds tossing a football on a green lawn, students encountering faculty in leafy courtyards: the trappings of a residential college are picturesque, but they also serve a function. An adaption of the Oxbridge model, contemporary residential colleges embody wide-ranging formats of on-campus residential experiences (Thelin, 2004; Yanni, 2019). Residential colleges seek to reinforce a shared sense of community through living spaces often characterized by residential, dining, and programming spaces with high-touch faculty involvement (Brown, Volk & Spratto, 2019; Yanni, 2019). Elite liberal arts colleges continue to invest in developing a residential college model for the perceived social and academic benefits of their students (Mayhew, Pascarella & Terenzini, 2016; Pike, Kuh & McCormick, 2011).

One such liberal arts college, Model University<sup>1</sup>, has determinedly invested in a high-impact residential experience for over 98% of its student body, including academic, social, and civic engagement opportunities (Model University, 2013). However, as part of a report from nearly a decade ago, an institutional residential learning planning group highlighted the missed opportunity of the residential life experience on campus. The report noted campus cultural issues, including barriers between class years – especially in their residential living communities, a social culture around excessive alcohol consumption, and a need for increased personal and social responsibility around diversity and inclusion. Additionally, a majority of students reported some dissatisfaction with living on campus, and students of color, international students, and students who receive financial aid were disproportionately represented in those negative experiences (Model University, 2013).

In order to mitigate these challenges and continue to provide a high-quality on-campus experience, Model University implemented the residential commons: a system in which all freshmen and sophomores are assigned to and live in one of four commons. There are academic and social elements to each commons. In 2015, the commons were implemented to create a residential living experience where every student, in their first two years at model, is part of a community that emphasizes institutional goals of intellectual engagement, community development, and an individual sense of belonging (Model, 2018).

Academically, the first-year students share the commons with the classmates of their first-year experience courses, and there are faculty directors for each commons. Socially, there is programming and activities within each commons, and even when upper-level students no longer live in the primary residence halls of the commons, they maintain their affiliation throughout their Model University experience.

In May of 2020, Model University asked us to design a project that would “assess the value of the residential commons system on students’ academic success, satisfaction, and engagement.” To guide this research project, this study started with one overarching question:

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<sup>1</sup> Model University is a pseudonym for an institution in the United States northeast. All references to the institution, including program and interviewee’s names, have been anonymized.

## TO WHAT EXTENT IS PARTICIPATION IN THE RESIDENTIAL COMMONS SYSTEM ASSOCIATED WITH STUDENT ENGAGEMENT AND ACADEMIC SUCCESS?

Using a mixed methods approach, this study aims to answer that question for Model specifically and to contribute to the literature surrounding residential models and student engagement.

### INSTITUTIONAL CONTEXT

Located in a small town in the American northeast, Model University is a small, private, liberal arts institution founded in the early nineteenth century. The town has tree-lined streets, neighborhoods filled with colonial houses, and independently owned coffee shops inhabited by students and locals alike. The institution sits above the quaint downtown core, and covers hundreds of acres of land; nestled on a tree-covered hillside. (Model University, n.d.b). As a highly residential and coeducational community, Model University focuses on an undergraduate curriculum that balances hallmarks of a liberal arts education with modernized practical experiences (Model University, n.d.a). With an average admission rate below 30%, Model mirrors the highly selective nature of peer institutions (NCES, 2021).

The student body represents a range of identities, and the university seeks to accomplish the mission of providing a liberal arts education to a group of diverse, talented, and intellectually gifted who invest in a residential learning community based on growth and development. The gender breakdown is almost evenly split between men and women, and roughly 35% of the student body are domestic students of color and international students (Model University, 2021). Unlike their peer institutions, roughly 40% of Model students belong to a Greek letter organization (GLO) on campus. Additionally, Model University is committed to their competitive student-athletes. To address the rising cost of attendance and concerns around student loan debt, the institution recently introduced a no-loan initiative, which works towards eliminating loans for current and incoming students (Model University, n.d.d.).

Guiding the out-of-class experience are the principles of academic inquiry, personal and social responsibility, civic engagement, access, and inclusion, which leads to a lifelong connection to the institution. These principles, as well as the opportunity to live and learn in community with faculty, staff, and peers are central to the Model experience. This experience begins at the core of Model's campus -- the quad. Described as the heart of the Model University campus— the quad is the core. The main academic buildings are situated around the quad, as are student residences. First and second-year students are housed on the quad in traditional residential hall-style buildings. As they matriculate to their junior and senior years, students move off the quad, further from the academic core of campus, into apartments, GLO's, and Main Street houses for a more independent living experience.

Contributing to the development of identity, engagement, and a commitment to learning and growth, Model's strategic plan highlights the shift from a traditional residential life experience to a residential commons model, explicitly connecting the residential commons as a key component to their student experience of belonging. Model's Residential Life office empowers students to contribute positively to a diverse community, with an educational priority begins with students' experiences through the dimension of intellectual engagement, living with integrity, intercultural maturity, and belonging in community (Model University, 2019). These priorities begin from first year move-in, through senior move-out.

The implementation of the commons in 2015 started with a small pilot group, consisting of 25% of the freshman class. The ultimate goal was to have the entire study body be a part of the system. In fall of 2017, 100% of the freshmen class was assigned to a residential commons. Beginning in 2018, all incoming students were assigned to a first-year experience course (FYEC) and randomly assigned a roommate who also belonged to the same commons. Starting in Fall 2020, 100% of the study body was affiliated with one of four residential commons. Each residential commons comprises two to three residential hall buildings geographically near each other, with an associated Main Street social house. Led by faculty directors, in collaboration with Residential Life staff, each commons also have a post-graduate Fellow and a staff of Resident Assistants who develop programming for students. Named after historical figures from Model's history, each of the individual commons has its own identity, traditions, and mascot.

The residential commons was implemented so every Model student would have a strong foundational community from day one, a place to build class unity, invest in tradition, and develop institutional affinity (Model University, n.d.e). The ultimate goal is that a student's affiliation with a commons is ever present, even after they move off the quad and even graduate from the institution. However, while the ultimate goal is centered around a sense of belonging and academic engagement, the residential commons model may not be having its desired impact on some students. This study is designed to examine the relationships between the residential commons, sense of belonging, and academic performance.

## DEFINITION OF TERMS

Given the highly contextualized nature of this study, the following definitions of commonly used terms have been provided below for reference:

TERM	DEFINITION
<b>Sense of Belonging</b>	<i>"students' perceived social support on campus, a feeling or sensation of connectedness, the experience of mattering or feeling cared about, accepted, respected, valued by, and important to the group (e.g., campus community) or others on campus (e.g., faculty, peers)"</i> (Strayhorn, 2019)
<b>Academic Engagement</b>	The time and energy students devote to learning and academic behaviors, including but not limited to studying, attending faculty office hours, educational experiences outside the classroom, and group work.
<b>Residential Commons</b>	First and second year residential communities that include live-in faculty and connection to first year seminar courses.
<b>On the Quad</b>	Central campus that is home to all academic buildings and 10 residential commons occupied by first- and second-year students.
<b>Off the Quad</b>	<1 mile south of central campus. This area houses juniors and seniors in apartments, townhouses, Greek letter houses, and the commons-affiliated Main Street Houses.
<b>Main Street Houses</b>	Four Main Street houses serve as the residential commons' social houses off the quad and provide an intergenerational gathering space for all affiliated students of that residential commons, from first-year students through seniors.



# RESEARCH QUESTIONS

Working with the initial, broad question -- *To what extent is participation in the residential commons system associated with student engagement and academic success?* -- a series of more specifically defined and conceptualized sub-questions were created. After conversations with Model University and research into the purpose of the residential commons, “student engagement” was broadly conceived as both social and academic, and three primary research questions were defined:

## WHAT IS THE RELATIONSHIP BETWEEN THE RESIDENTIAL COMMONS SYSTEM AND STUDENT SENSE OF BELONGING? IS THIS RELATIONSHIP DIFFERENT FOR THE DIFFERENT STUDENT GROUPS?

Model University strives for the residential commons to engage residents through academic, recreational, and social opportunities – creating belonging, connection, and a kinship with Model University (Model University, n.d.f.). For the purpose of this study, we utilized Strayhorn’s (2019) definition of sense of belonging, which broadly includes aspects of connection, mattering, and feeling respected by both the campus community and peers. This led us to ask:

- To what extent is participation in the residential commons system associated with sense of belonging?
- Is the association of participation in the residential commons system and sense of belonging different for different student demographics, such as race, SES, Greek Letter organization participation, student athletes status?

Additionally, Model’s institutional residential learning planning group highlighted aspects of residential life that undermine institutional priorities, including excessive alcohol consumption, siloed class years, and barriers to an inclusive student culture. Given this relationship, we also asked:

- To what extent is participation in the residential commons system associated with rates of drug and alcohol use?
- In what ways does the residential commons system contribute or not contribute to a sense of belonging?

Answering these questions will provide leadership with data into how students experience and make meaning of living on campus and the culture that influences social connection. The information collected is intended to shed light

on success and barriers to finding a sense of belonging within Model's residential commons.

## WHAT IS THE RELATIONSHIP BETWEEN THE RESIDENTIAL COMMONS SYSTEM AND ACADEMIC PERFORMANCE?

As part of the structure of an academic institution, the residential commons should support the academic mission, and Model's interest in evaluating the academic success of those in the commons confirms this. For the purposes of this study, academic performance is conceptualized in two different ways, leading to two separate sub-questions:

- Is participation in the residential commons system associated with academic success?
- Is participation in the residential commons system associated with academic engagement?

Academic success is primarily about student outcomes, like GPA and retention, while academic engagement is about the student behaviors that often lead to academic success. Treating these two concepts separately allows us to understand students' academic performance on a more granular level.

## DOES A STUDENT'S SENSE OF BELONGING IN THE RESIDENTIAL COMMONS SYSTEM HAVE ANY RELATIONSHIP WITH ACADEMIC ENGAGEMENT?

Finally, the relationship between sense of belonging and academic performance is expected, given the literature and the purpose of the commons, but it has not been tested in this particular environment. Given the institutional goals of the commons, exploring whether academic engagement is affected by a student's sense of belonging is critical to understanding its impact. Therefore, this question was broken down into two sub-questions:

- To what extent is a student's sense of belonging associated with academic engagement?
- Does a student's involvement in the residential commons system affect the relationship between sense of belonging and academic engagement?

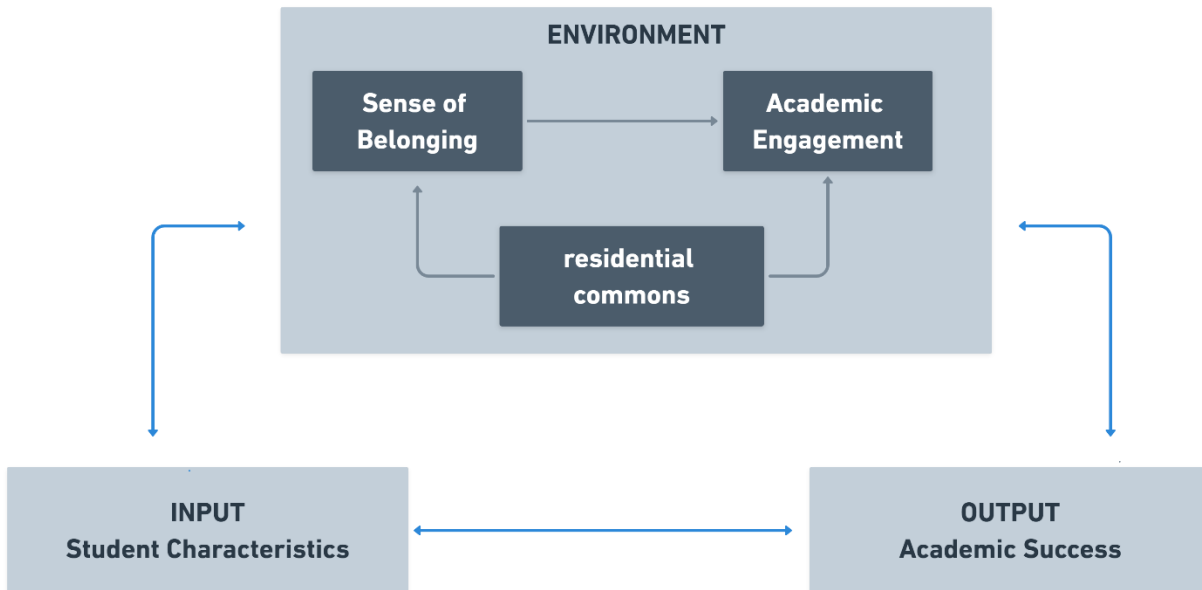
Answering these questions can help Model University know if it would be academically beneficial to invest in initiatives meant to improve individual students' sense of belonging, and if the commons might affect those investments.

# LITERATURE REVIEW

The long-term goals of a college education generally, and a liberal arts education specifically, include goals like critical thinking skills, moral character, physical and emotional well-being, intellectual engagement, and openness to diversity (Center for Inquiry at Wabash College, 2021; Strayhorn 2006). The three major concepts of concern in this study -- sense of belonging, academic performance, and residential environment -- represent significant areas of concern for higher education stakeholders because, in part, they move students towards those long-term goals.

Astin's inputs-environment-outcome (I-E-O) model helps place the three major concepts within the overall framework of college impact. Students come to their higher education institutions with certain characteristics including, social class, demographics, and standardized test scores. These inputs will necessarily have an effect on individual students' outcomes. However, what happens during students' educational experiences -- the environment -- will also affect their outcomes. For Astin (1993a), environment refers to "the various programs, policies, faculty, peers, and educational experiences to which the student is exposed" (p.7). The environment the student is exposed to includes institutional characteristics, faculty characteristics, student community, the peer environment, and student involvement (Astin, 1993a). This model is not just useful for thinking about how the environment may affect outcomes, however. It should also be noted that the elements within the environment are also interacting. For example, residential environments and sense of belonging likely interact with each other, as do sense of belonging and academic engagement.

Below is a model for how this study's variables can be mapped onto Astin's model. As will be discussed below, academic performance is operationalized as both academic engagement and academic success, so those concepts are mapped separately.



*Model Adapted from Astin (1993a)*

## SENSE OF BELONGING

A review of the existing literature reveals various meanings of sense of belonging (Hoffman et al., 2002; Strayhorn, 2019; Johnson et al., 2007). According to Hoffman et al. (2002), "sense of belonging" reflects students' integration into the college system. Although researchers often use the notion of sense of belonging when discussing persistence and student departure, it is essential to acknowledge that there has been no conceptualization of this theorized construct in attrition models (Hoffman et al., 2002). Gaining a better understanding of the factors that contribute to the development of sense of belonging provides an opportunity to further understand factors that contribute to student retention. Hoffman et al. (2002) provide an empirical measure of sense of belonging, which includes five elements: (1) perceived peer support, (2) perceived faculty support, (3) perceived classroom comfort, (4) perceived isolation, and (5) empathetic faculty understanding. The authors concluded that learning communities encouraged student/peer interactions through common challenges and stressors, which helped create meaningful bonds that combined academic and social aspects of the college experience (Hoffman et al., 2002).

When describing sense of belonging, Strayhorn (2019) provides a visual depiction of how to engage sense of belonging in college by incorporating Maslow's (1954) hierarchy of needs with distinct social contexts to identify specific positive/negative outcomes for student success. Strayhorn (2019) defines sense of belonging as "students' perceived social support on campus,

a feeling or sensation of connectedness, the experience of mattering or feeling cared about, accepted, respected, valued by, and important to the group (e.g., campus community) or others on campus (e.g., faculty, peers)" (p. 4). Strayhorn's definition encompasses the importance of sense of belonging for underrepresented students who may perceive themselves as marginal in terms of campus life and thus makes a connection between belonging and mattering in his definition. Strayhorn (2019) specifically lists seven core elements, saying that sense of belonging is (1) a basic and universal need, (2) a driver of human behavior, (3) of heightened importance in different contexts, (4) a consequence of mattering, (5) affected by social identities, (6) influential on other desired outcomes, and (7) important to continually satisfy. Johnson et al. (2007) created a five-item scale that asked questions concerning whether students felt comfortable on campus, whether they would choose the same college over again, whether their college is supportive, whether they feel like a member of the campus community and whether they feel a sense of belonging to the campus community. Johnson et al. (2007) assert that the residence hall provides an opportunity to shape students' sense of belonging, especially because the authors found that perceptions of the campus racial climate had a strong significant relationship to students' sense of belonging.

Several studies highlight that sense of belonging positively influences intent to persist (Hausmann et al., 2007, as cited in Strayhorn, 2012; Spanierman, 2013). Goapalan & Brady (2019) highlight the need to better measure/understand belonging and related psychological factors to identify what may encourage college students' success and well-being as sense of belonging is positively associated with engagement, and mental health. The relationship between sense of belonging and retention has also been identified in the literature. Hausmann et al. (2009) found a positive relationship between the quality of peer interactions and sense of belonging, as well as a positive relationship between sense of belonging and retention.

## **SOCIO-ECONOMIC STATUS**

The findings in the literature around socio-economic status and belonging are mixed. A recent study regarding sense of belonging that controlled for family income revealed no association with sense of belonging (Gillen-O'Neel, 2019), while another study revealed that students whose parents/guardians had higher income reported higher belongingness (Garvey et al., 2020). Working-class students reported having a lower sense of belonging than middle/upper-class students ( $d=.28$ ) and reported having less social capital ( $d=.33$ ) (Soria & Stebleton, 2013).

## **RACE**

Research indicates that student race is associated with different levels of sense of belonging (Gillen-O'Neel, 2019). Students of color have a lower sense of belonging on campus than White students (Spanierman, 2013; Johnson et al., 2007). For example, White students ( $SD=.80$ ) report

more belonging than Latino students (Spanierman et al., 2013) and African American students ( $SD=.63$ ;  $p<.01$ ) (Spanierman et al., 2013; Gillen-O'Neel, 2019). Interestingly, minority and first-generation students have a higher sense of belonging ( $p<.01$ ) at two-year colleges than their peers at four-year institutions (Gopalan & Brady, 2019). In addition, it has been demonstrated that the interrelationships between teacher and peer interactions, sense of belonging, and academic success are different for minority students (Meeuwise et al., 2010). Formal teacher ( $d=.28$ ) and peer ( $d=.36$ ) interactions were precursors to sense of belonging as different forms of interactions lead to a greater sense of belonging for minority students (Meeuwise et al., 2010).

## **GREEK LETTER ORGANIZATIONS**

In American institutions, and in elite institutions in particular, Greek letter organizations (GLOs) can play a prominent role in the social fabric of some students' lives. In a study comparing freshmen and seniors in GLOs, Asel et al. (2009) found that GLOs did "tend to facilitate social integration and enhance the development of close and influential relationships" (p.6). Walker et al. (2015) found that GLO membership at an elite, private university predicted a greater satisfaction with social lives, even after accounting for selection effects. Hurtado and Carter (1997) also found that Latino students associated culturally based GLOs with feelings of belonging. In a survey of self-reported gains of fraternity and sorority members, Long (2012) reported that, overall, respondents described their experiences as "excellent" in encouraging a sense of belonging.

Those feelings of belonging can come at a cost, however. From their founding, exclusivity has been a part of GLOs (Barber et al., 2015; Yanni, 2019), and those in GLOs are slightly more likely to have homogenous social circles than those who are not (Antonio, 2001). Multiple studies have linked GLO affiliation with higher levels of alcohol abuse (Wechsler et al., 1996; White & Hingson, 2013, inter alia), although some of that abuse can be attributed to pre-college characteristics (Walker et al., 2015).

## **SUBSTANCE USE**

Developing social support networks in college is a key component to a student's perception of belonging and their overall well-being. It is well documented that alcohol and/or drugs serve as a social lubricant for students in developing a social network in college. Students "report that alcohol helps them socialize with peers by reducing inhibitions and facilitating social bonding" (Thompson et al., 2019, p.57). Given the rite of passage role substance use has, coupled with documented negative effects, it serves as a significant public health issue (Bell & Wechsler, 1997; Hudson, et al., 2018; NIAAA, 2003). Exposure to high-risk substance use has been associated with lower rates of physical and mental wellbeing, lower academic gains, and noted

to “disrupt or damage support networks and feelings of connectedness to the campus community” (Thompson et al., 2019, p.58). Participation in high-risk behaviors, spending less time studying, missing class and lower GPA’s, living in coeducational dorms, fraternities/sororities, frequently attending parties, and not seeing religion/community service as important are all factors that are predictive of both marijuana use and excessive alcohol consumption (Bell & Wechsler, 1997; White & Hingson, 2013).

Further, the prevalence of secondhand harms from other’s drinking has been well documented to negatively influence social acceptance, physical safety, and interruptions of academic engagement activities (Davis MacNevin et al., 2017; Langley, 2003; Thompson et al., 2019). Literature highlighting opportunities to mitigate the harms of substance use amongst college students include high levels of social capital (Peterson, 2019), volunteerism and community commitment (Weitzman & Kawachi, 2000), and environment strategies like correcting social norms (NIAAA, 2003; Werch et al., 2000).

Weitzman & Kawachi (2000) studied the average time students spent volunteering to identify whether the presence of social capital played a role in preventing binge drinking on college campuses and found that social capital was positively correlated with a low-risk style of drinking ( $p < .001$ ). More specifically, neighborhood tolerance/intolerance was used as a social capital indicator in a study examining the association between students' self-reported number of drinks, confirming an inverse association with the belief that neighbors were intolerant ( $r = -.183, p < .01$ ) (Peterson, 2019). According to the National Institute on Alcohol Abuse and Alcoholism (2003), social capital is often a protective factor, as social perceptions can influence college students' binge drinking rates.

## ACADEMIC PERFORMANCE

Academic achievement, which is traditionally measured through GPA and other more specific measures of academic competence, is, as Astin (1993a) has written, “surely the most researched topic in higher education” (p.186). Faculty behavior, class sizes, course delivery mode, pedagogical approaches, peer cohort composition, and co-curricular experiences all have some role to play in the development of academic competence, but there are few concept areas as substantially linked to academic success as academic engagement. As Mayhew et al. (2016) put it, “The weight of the evidence is clear: the more effort students expend in their courses pays off in increased competence” (p.73).

Astin’s involvement theory (Astin, 1984; Astin, 1993a) is foundational for current thinking about academic engagement. As Astin (1984) wrote, “Quite simply, student involvement refers to the

amount of physical and psychological energy that the student devotes to the academic experience” (p.297). Although student involvement as a concept can be quite broad, encompassing everything from studying to socializing, the subcategory of academic involvement has a number of associations with academic success. For example, tutoring other students, hours spent studying, and time spent with faculty outside of the classroom are all positively associated with student GPA (Astin, 1993a). A similar pattern is found for student retention (Astin, 1993a). These elements of academic involvement map onto much, though not all, of the conceptualization of academic engagement.

Academic engagement, which is commonly measured through the National Survey of Student Engagement (NSSE) encompasses not only student behaviors, but also institutional practices that encourage those behaviors (Wolf-Wendel et al., 2009). It is not “an extension of involvement” but rather “an expression of the importance of more explicitly linking student behaviors and effective educational practice” (Wolf-Wendel et al., 2009, p. 414). Academic engagement has a positive relationship with several academic measures such as academic competence, general education, and learning and intellectual development (Mayhew et al., 2016). However, it is important to note that this relationship may be “indirectly mediated through students' integration experiences” (Mayhew et al., 2016, p. 74).

Although involvement is an environmental variable (Astin, 1993a) and some caution against using involvement and engagement as outcome measures (Wolf-Wendel et al., 2009), there are good reasons for academic engagement to be used as an outcome measure, rather than just a means to an end. For example, academic engagement correlates with measures of academic competence, such as GPA and standardized tests (Carini et al., 2006). Additionally, because of this correlation, many in educational research use academic engagement, and specifically the NSSE, as a proxy for academic outcomes (Shulman, 2007). Given this correlation and common practice, using academic engagement as a proxy for academic outcomes seems appropriate and useful, especially if academic outcomes can also be used, as in this study.

## RELATIONSHIP BETWEEN SENSE OF BELONGING AND ACADEMIC PERFORMANCE

There are a number of reasons to believe that sense of belonging would affect academic performance, both because of studies that link them directly and because of what is known about the individual components of sense of belonging.

In making his connections between sense of belonging and academic success, Strayhorn (2019), draws from the research surrounding psychological well-being. He writes that the more students “have to do to feel a sense of belonging, the less resources available to them to



devote to studying for class, acing a test, or engaging in undergraduate research” (p.20). Indeed, studies explicitly examining the relationship between sense of belonging and academic success find a positive relationship between the two (Hausmann et al., 2007; Ostrove & Long, 2007). When looking at the relationship for students from a low SES background, this relationship holds, but with significant interactions. For example, while SES has a direct relationship with academic performance, SES also affects sense of belonging, which in turn affects academic adjustment (Ostrove & Long, 2007). Additionally, working-class students have a lower sense of belonging and a lower level of social capital than their upper and middle-class counterparts, with social capital affecting sense of belonging, which in turn affects academic engagement (Soria & Stebleton, 2013).

The concept of sense of belonging is a broad one, and it encompasses many different components. Within the different definitions of sense of belonging, several components stand out as being linked to academic performance: a supportive campus environment, the quality of relationships, and out of class engagement. A supportive campus environment is positively associated with learning gains, especially if that campus environment is diverse (Mayhew et al., 2016). In a study of data from the National Survey of Student Engagement (NSSE), across multiple institutions, Reason et al. (2006) found that the largest impact on academic competence was first year students’ perception of the support they were getting, a relationship that was substantive ( $B=.3$ ) and statistically significant ( $p<.001$ ). The quality of relationships, with peers, faculty, and staff also can play an important role in encouraging academic success and engagement. Students who report good relationships with faculty and staff gain more in academic competence over their college education, though those relationships were much smaller (Reason et al., 2006). It is even possible that the different findings linking residence halls with academic performance may be a result of other interactions, particularly relationships, as students living on campus are positioned to have more engaging relationships (Mayhew et al., 2016).

The findings around out of class engagement are mixed. Reason et al. (2006) found that the level of out of class engagement had a very small but negative impact on academic gains, while Mayhew et al. (2016) report a positive relationship between informal peer interaction and learning gains. Part of this might be because Reason et al. (2006) operationalized out of class engagement through questions about time spent on out of class activities, defined quite broadly, while the studies outlined in Mayhew et al. (2016) are both more granular -- breaking down the individual pieces that constitute out of class engagement -- and more diverse -- focusing on more measures than simply overall time spent. Within those studies, several variables of interest have mixed results on student learning, including affiliation with a Greek letter organization and athletic status.

## THE RESIDENTIAL ENVIRONMENT

Much of the foundational literature on the effects of residential life on student outcomes has centered around a simple binary -- those living on campus and those not -- but there are important distinctions to be made between types of residence halls and their use to influence student outcomes. Residential commons and living learning communities are of particular interest to this study for their potential relationships with sense of belonging and academic performance.

### RESIDENTIAL COMMONS

What is referred to as the “residential commons system” in this study goes by many different names, but the purposes are similar: to create a smaller cohort of students within the larger university so that students can find community. Whether they are called residential colleges, houses, residential communities, residential learning communities, or residential commons, these smaller communities within the larger universities exist to provide students with community through the built environment and a shared identity.

Although many associate residential colleges with the Oxbridge model, their history in modern American education can be traced to the early twentieth century at Yale University. There, the administration proposed a residential environment that would allow professors and students to connect more fully, as a way to reclaim some of the environment of colonial Yale (Yanni, 2019). At around the same time, Harvard University started its house system. These residential communities were envisioned as “intellectual communities enriched by lectures, music, clubs, sports, and dining” (Yanni, 2019, p.145). In the intervening century, residential colleges have been implemented at universities large and small, not only as a way for institutions to signal prestige, but also as a way to resist the fragmentation of the modern university, through communal spaces and shared identity.

When it comes to the built environment, differences matter. As Brown et al. (2019) write, “architectural design chosen by the university influences the opportunities for students to establish relationships,” and those relationships in turn influence students’ academic achievements (p.271). Most of the literature around the built environment of residence halls explores the potential effects of common space for students. While many students may prefer apartment-style dorms, with larger individual suites and less communal living spaces, those who live in such dwellings report significantly lower senses of community than those living in traditional dorms with shared corridors and communal spaces (Devlin et al., 2008). Chambliss and Tackas (2014) argue that shared corridors and communal spaces encourage student social interactions, and Brown et al. (2019) found that those students who live in shared corridor style

spaces had slightly higher first semester GPAs. On the other hand, Bronkema and Bowman (2017) found that residence hall design was not significantly related to outcomes such as community, satisfaction, or academic achievement. However, they did find that “buildings with all first-year students have higher levels of college satisfaction, college GPA, and intent to persist” (Bronkema & Bowman, 2017, p. 627). Brown et al. (2019) found that architecture also matters in that more socializing corridor residence halls were positively associated with a higher GPA when compared to students who lived in more isolating residence halls.

In addition to communal spaces, identity may be another important piece of the potential effect of residential colleges. Within the context of a large university, giving students a smaller group to be affiliated with can be helpful, and, as Yanni (2019) describes, can promote “loyalty to the group, as once students held loyalty to their class years” (p.143). The formation of this smaller group, she argues, can be considered “more important than any specific type of building, quadrangular or otherwise” (p.143). As an important dimension of community in residence halls, identity can influence how much students choose to invest in community (Braxton et al., 2014). Identity can be developed through things like programming, hall symbols, or hall competitions (Erb et al., 2015). Finally, residential colleges can have the effect of bringing students into the larger identity of the university, acclimating students to the social and academic conventions of college life (Yanni, 2019).

In addition to studies specifically about residential commons, other findings about residential life would suggest that residential commons systems would increase sense of belonging and academic performance. Students who felt their residence hall was socially supportive were found to have a greater sense of belonging than those who did not (Johnson et al., 2007). Residential spaces are also crucial for students' overall adjustment to college, as having an inviting living environment that includes accessible resources was highlighted as a need by students (Garvey et al., 2020). Mayhew et al. (2016) highlight that living on campus may positively affect retention because of proximity, promoting academic and social integration/involvement. On campus residents showed better sleep quality and less feelings of stress than off-campus-living students (Lau et al., 2013)

Finally, although many studies have examined the academic effects of residence halls, many do not account for different demographic groups and institution type, which is especially important as GPA was significantly lower for black students and students who attend liberal arts institutions and who live off-campus with family (Lopez Turley & Wodtke, 2010). This is especially important as Lopez Turley and Wodtke (2010) found that in almost every measure of their study, including academic performance, students who lived on campus were more advantaged than those who did not. A relationship between academic performance and living

arrangements has also been identified, as commuter students earned higher GPAs than residential students (Simpson and Burnett, 2019).

## LIVING LEARNING COMMUNITIES

Living learning communities (LLCs) are one particular type of residential community specifically designed to positively affect academic performance. Traditionally defined as a community of students who take two or more classes together (Zhao & Kuh, 2004), multiple studies have examined the academic effects of LLCs. LLCs improve student retention as well as academic performance (Hotchkiss et al., 2006). Participation in LLCs has been shown to lead to higher GPAs, a greater number of credit hours earned, and fewer cases of academic probation (Baker & Pomerantz, 2000). Generally, they seem to be tied to overall academic engagement and success (Wilson et al., 2015; Zhao & Kuh, 2004). When looking at the effects of LLC participation across genders and races, once self-selection is controlled for, the most substantial positive impact is felt among Black men (Hotchkiss et al., 2006). There is still much to be learned about LLCs, however. While positive effects are found from these communities, it is difficult to know which aspects of LLCs are most impactful (Andrade, 2007).

When it comes to the social effects of LLCs, students involved in these communities have reported significantly higher levels of sense of belonging in their residence halls than non-LLC students (Spanierman, 2013). More specifically, LLC students revealed that feeling a part of the residence hall community helped students feel part of the larger campus community (Spanierman, 2013). Living learning communities are associated with increased college satisfaction (Baker & Pomerantz, 2000) and can lead to higher quality connections between faculty and students (Arendsdorf & Naylor-Tincknell, 2016). Additionally, the learning community model has been shown to be associated with more peer interactions and a greater sense of belonging (Hoffman et al., 2002). Overall, research has found that learning communities provide opportunities for meaningful student engagement (Mayhew et al., 2016) and are also positively linked to student engagement (Pike et al., 2011).

## SUMMARY

To summarize, sense of belonging plays a role in many of the important outcomes of college: intent to persist, psychological well-being, and academic performance. However, sense of belonging can differ between various student groups, and not every student finds a place to belong. This may be especially acute in elite institutions where those predisposed to have a lower sense of belonging -- such as minoritized populations or those from low socioeconomic status -- can feel particularly alienated. This has the potential to have serious effects on academic performance, undermining the mission of these institutions to provide all students

with a high-quality education. Given the literature about the positive effects of the residential environment, colleges interested in investing in sense of belonging may want to look to residential interventions, interventions like residential commons. However, the value of these investments is unclear.

Understanding the relationship between sense of belonging, academic performance, and residential interventions is critical for those wanting to care for students in an undergraduate, highly residential environment. While it would seem straightforward to assume that investing in residential commons would meet the needs of students, particularly marginalized students, studies linking these three concepts are scant. Does a residential system contribute to sense of belonging, particularly for those students who most need it? Additionally, does that system also contribute to academic performance? Finally, does sense of belonging predict academic engagement, and do the residential commons affect that relationship at all? This study seeks to better understand the relationship

# DATA & METHODS

To explore the relationship between the residential commons and student sense of belonging and academic engagement at Model, this project employed a mixed methodological approach. The institution provided substantial amounts of data sets from several key instruments administered by the Department of Institutional Research and Planning. Further, Model emphasized the necessity to engage actively with students and staff on a qualitative level to ensure their voices and experience are included in the results.

## QUANTITATIVE DATA

### DATA SETS USED

The quantitative data for this study was provided to us through Model University's Department of Institutional Research. The identification of relevant data was made with two important criteria. First, it was essential to compare those within the residential commons system with those, not in the residential commons system. Our primary evaluations were limited to the years 2014-2017, when the commons were partially implemented, though in some analyses, years outside that range were evaluated for additional context. Second, student-level data needed to be tied to institutionally tracked characteristics not included in the original surveys. The data chosen includes nationally administered student surveys: The National Survey of Student Engagement (NSSE), Your First College Year Survey (YFCY), and The Core Drug and Alcohol Survey (CORE). It also includes administrative data: GPA, retention, and student conduct reports.

In order to protect student privacy, all student-level data from the surveys was tied to a study-specific unique ID generated by Model before it was given to us. The unique ID allowed students to be identified as participating in the commons or not. Other student variables of interest were added to survey data by the institution when possible.

Table 1: Descriptions of Data Sets

**QUANTITATIVE DATA SETS**

Student Surveys			
Instrument	Year(s)	Institutional ID added	Response Rate (when applicable and available)
NSSE	2017	Commons affiliation, eventual Greek Letter Organization (GLO) participation, athletic status, SES (no-loan initiative eligible)	29%
NSSE	2011, 2014, 2017, 2020	*no student level data added, as these were institutional level only	
YFCY	2016, 2017, 2018	Commons affiliation, eventual GLO participation, athletic status, SES (no-loan initiative eligible)	24% for 2016 13% for 2017
CORE	2016	On-Campus Residence Status, GLO participation, athletic status, care & wellbeing for self/others, alcohol use and beliefs, peers' drinking interference in activities	24% for 2016
Administrative Data			
Data	Year(s)	Information included	
GPA	2015-2018	Commons affiliation, term GPA, and cumulative GPA through term	
Retention	Fall 2015 and Fall 2016	Commons affiliation, freshman to sophomore retention	
Student Conduct Data	2018-2020	Commons affiliation, alcohol violation, drug violation, medical amnesty offered	

**INSTRUMENT INFORMATION**

**NSSE:** The National Survey of Student Engagement is published by the Center for Postsecondary Research at the Indiana University School of Education. It has been in existence since 2000 and underwent a significant revision in 2013 (NSSE, n.d.a). Both widely used and studied, it is designed to measure student engagement, which includes “both the extent to which students participate in educationally effective activities as well as their perceptions of facets of the institutional environment that support their learning and development” (NSSE, n.d.b). It is given

during the spring semester. As one of the premier tools for measuring and understanding student engagement, the NSSE gave us an opportunity to choose from a large selection of carefully constructed and tested questions about student engagement.

**YFCY:** The Your First College Year Survey is distributed by the Higher Education Research Institute at The University of California, Los Angeles. In existence since 2000, it is often given in the spring and used in conjunction with a fall survey in order to assess student growth over a student's freshman year. Although we did not use it in conjunction with its fall counterpart, the YFCY provided a number of responses related to student belonging and also gave us the opportunity to verify findings across independent data sets.

**CORE:** Originally developed in 1989 by the US Department of Education's Fund for the Improvement of Postsecondary Education (FIPSE), the CORE Alcohol and Drug Survey has been administered to over 800 campuses through Southern Illinois University - Carbondale. Following the American Psychological Association (APA) guidelines for test development, the CORE survey allows institutions to "quantify and document (their) college students' attitudes, perceptions, and opinions about alcohol and drugs" (CORE Institute, Southern Illinois University, 2021). "Considerable evidence supports the validity of the Core Survey... A panel of experts then reviewed the items... level of agreement for item inclusion among the experts was very high (interrater reliability was .90)" (Austin, Jacobs, and Presley, 2010). In 2002, CORE expanded to include questions about sexual orientation, campus violence, institutional climate, secondhand effects of substance use and extracurricular activity involvement which benefited our use of this tool in analyzing sense of belonging and academic engagement.

## DATA SAMPLE

The sampling strategy for the quantitative data varied from data set to data set. The administrative data, which includes GPA, retention, and student conduct data is comprehensive, representing the population as a whole. For the student survey data, all eligible students were invited to participate, and response rates, which are noted in Table 1, ranged between 13% and 29%.

As can be seen in Table 2, those affiliated with the commons and women are overrepresented in the sample populations for NSSE and YFCY, while women were underrepresented in CORE. Athletes were underrepresented in NSSE and YFCY. It is difficult to know the racial representativeness of the sample population because student surveys include international students, but Model's institutional numbers do not. It is worth noting that, although the combined data for YFCY 2016 and 2017 has an unusually high number of students not affiliated with the commons, this is because it includes data from spring of 2016, when a much smaller



portion of the freshmen were in the commons. The data from 2017 alone show a closer-to-expected 70% of students affiliated with the commons.

*Table 2: Population Characteristics*

Population Characteristics		NSSE 2017 Freshmen Only	YFCY 2016 + 2017	CORE 2016	2017 Freshman Class
Gender	Male	28.64%	34.45%	67%	43.3%
	Female	71.36%	65.55%	33%	56.7%
Race*	White	71.07%	69.92%	74.6%	66.3%
	Black	4.40%	5.91%	4.8%	4.6%
	Hispanic	5.03%	8.44%	7.2%	7.6%
	Asian	9.43%	13.92%	9.3%	3.9%
	Multiracial or Other	10.07%	2.11%	4.2%	8.1%
Commons affiliated		64.09%	35.69%	--	55%
Athlete		15.91%	15.29%	23.3%	23.6%
Low SES		25.45%	31.76%	--	--
Eventual GLO participant		31.82%	35.69%	28.3%	33.7%

*\*international students are not included in racial percentages for institutional data as a whole, but they are included for YFCY and NSSE*

## METHODS OF ANALYSIS

**Student Characteristics.** Student characteristics of interest were commons affiliation, eventual participation in a GLO, student athletic status, and socioeconomic status (SES). Given institutional data available to us, low SES is defined through a student's eligibility for Model's

no-loan initiative. Although the income cut off for that no-loan initiative is higher than traditional measures of low income, given the income profile of Model, it does capture those students who are well below the school's median family income.

**Administrative Data.** Student GPA, both term GPA, and the cumulative GPA through that term were provided for each semester of 2015, 2016, 2017, and 2018 (N=22,748). Retention data was provided for each student's retention from freshman to sophomore year, for 2015 and 2016 (N=1,537). Student conduct data was provided for the academic years 2018, 2019, and 2020 (N=2,405) and included violation type (alcohol, drug), medical amnesty, and commons status indicators.

**Survey Data and Scale Construction.** In order to describe students' sense of belonging and academic engagement, we started by creating scales using existing survey items. For sense of belonging, we used Strayhorn (2019) and looked for questions on the NSSE, YFCY, and CORE that corresponded to that conceptualization of sense of belonging. Once relevant questions were identified, we used STATA to calculate reliability using Cronbach's Alpha for the set and dropped the questions that brought down overall reliability. The resulting alpha reliabilities for the sense of belonging scales were 0.8 for the NSSE scale, 0.9 for the YFCY scale, and 0.8 for the CORE scale. The alpha reliabilities for the academic engagement scales were 0.76 for NSSE and 0.75 for YFCY. When constructing the scales, we also standardized each variable, rather than using the original scale of the survey instrument. For academic engagement, we focused on survey items that described student effort, rather than institutional effort to promote student engagement because we were interested in academic engagement as a variable affected by individual students' sense of belonging and residential environment, rather than direct institutional effort in the classrooms. In that way, the operationalization of academic engagement resembles Astin's concept of academic involvement. The final set of questions used for each scale can be found below.

Table 3

<b>SENSE OF BELONGING SCALE CONSTRUCTION</b>	
<b>NSSE</b>	<b>YFCY</b>
<i>Alpha = 0.80</i>	<i>Alpha = 0.90</i>
How much does your institution emphasize... providing opportunities to be involved socially	Since entering this college, how has it been to... Ease: Develop close friendships with other students
How much does your institution emphasize... helping you manage your non-academic responsibilities (work, family, etc.)	Please indicate the extent to which you agree or disagree... Opinion: I see myself as part of the campus community
How much does your institution emphasize... using learning support services (tutoring services, writing center, etc.)	Please indicate the extent to which you agree or disagree... Opinion: I feel valued at this institution
Indicate the quality of your interactions with... other administrative staff and offices (registrar, financial aid, etc.)	Please indicate the extent to which you agree or disagree... Opinion: I feel a sense of belonging to this campus
How much does your institution emphasize... providing support to help students succeed academically	Please indicate the extent to which you agree or disagree... Opinion: I feel I am a member of this college
Indicate the quality of your interactions with... faculty	
Indicate the quality of your interactions with... student services staff (career services, student activities, housing, etc.)	
How much does your institution emphasize... providing support for your overall well-being (recreation, health care, counseling, etc.)	
Indicate the quality of your interactions with... students	
If you could start over again, would you go to the <i>same institution</i> you are now attending?	

Table 4

<b>ACADEMIC ENGAGEMENT SCALE CONSTRUCTION</b>	
<b>NSSE</b>	<b>YFCY</b>
<i>Alpha = 0.76</i>	<i>Alpha = 0.75</i>
During the current school year, about how often have you... connected ideas from your courses to your prior experiences or knowledge	Since entering this college, how often have you interacted with... Interact: faculty <u>during</u> office hours?
During the current school year, about how often have you... discussed course topics, ideas, or concepts with a faculty member outside of class	Since entering this college, how often have you interacted with... Interact: faculty <u>outside</u> of class or office hours?
During the current school year, about how often have you... discussed your academic performance with a faculty member	Since entering this college, how often have you... Act: asked a professor for advice after class?
During the current school year, about how often have you... reviewed your notes after class	How often in the past year did you... Habits of Mind: ask questions in class?
During the current school year, about how often have you... asked questions or contributed to course discussions in other ways	How often in the past year did you... Habits of Mind: seek solutions to problems and explain them to others?
During the current school year, about how often have you... prepared two or more drafts of a paper or assignment before turning it in	How often in the past year did you... Habits of Mind: explore topics on your own, even though it was not required for a class?
During the current school year, about how often have you... examined the strengths or weaknesses of your own views on a topic or issue	Since entering this college, indicate how often you contributed to class discussions.
About how many hours do you spend in a typical 7-day week... preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities)	Since entering this college, indicate how often you... Act in College: discussed course content with students outside of class.
During the current school year, about how often have you... combined ideas from different courses when completing assignments	
During the current school year, about how often have you... asked another student to help you understand course material	
During the current school year, about how often have you... explained course material to one or more students	
During the current school year, about how often have you... prepared for exams by discussing or working through course material with other students	

**Statistical Analysis.** The data sets were imported into STATA to conduct the statistical analysis. Based on how Model University collects and categorizes data, some variables were coded as binary variables in the process. Statistical analyses were conducted to explore potential relationships between variables by conducting linear regressions, independent sample t-tests, linear regressions with interactions, and chi-squared tests. Because the analyses varied between research questions, details will be given along with the results.

## QUALITATIVE DATA

The qualitative methods of this study provided rich expansion on the quantitative methods by highlighting how both students and staff experience sense of belonging, academic engagement, and interactions with the residential commons on campus. With the aim of specifically addressing the study questions, interviewers followed a semi-structured interview protocol (see Appendix) addressing frameworks of sense of belonging, academic engagement, and social capital. Throughout the analysis of websites and social media profiles, several observations were conducted, including a virtual self-guided tour of Model University and the study of virtual spaces tied to residential commons initiatives. These observations informed the research team on ways students may absorb the presence, the level of importance and encouragement of finding a sense of belonging and academic engagement on campus. The team was also provided with several pieces of documentation ranging from board of trustees' reports, Model's strategic plan, and pre-matriculation course curriculum, and the student code of conduct.

**Sampling.** Model University provided the research team access to a randomized sample of 248 undergraduate students. These students were a random sample, in which the Office of Institutional Research oversampled students identified as Hispanic, Black, and low-SES to balance representation of the undergraduate student body. Emails requesting participation in focus groups resulted in 18 (7%) student sign-ups, with 7 (38%) participating in 1-hour focus groups. Student Interviews were in a focus group format, over video conferencing. In addition, researchers facilitated a focus group within a student group meeting of 11 students. Demographics of the students who participated in the focus groups include male students (N=1), female students (N=16), non-identifying (N=1), Black Students (N=2), Hispanic/Latino students (N=4), White (N=12), and a student who identified as multiracial (N=1). 43% of the students who participated qualified for the institutional no loan initiative, and all but one (86%) lived in a residential common as a first-year student. The sample is involved on campus through their role as student athletes (N=2), in a GLO (N=11), in a culture-based (N=4) or spiritual organization (N=1) or serving as a resident assistant (N=1). To complement the student experience, a range of staff and faculty were interviewed, of which the sample included:

student life staff (N=4), residential life staff (N=5), faculty (N=2), and institutional leadership (N=2).

**Interviews.** Qualitative data was collected by conducting interviews over Zoom, and responses were recorded with written notes and a voice-to-text software. The research team guaranteed anonymity by ensuring student subjects consented to the interview and recording before the interview began. All subjects were provided with an option to opt-out of the voluntary interview.

**Analysis.** A semi-structured guided interview protocol was used to facilitate interviews, and transcripts of the interviews were analyzed holistically, using concept cluster matrices.

## LIMITATIONS

While the specific nature of this study limits the ability to generalize its findings beyond the institution itself, there are also a few limitations that could impact the validity of our results. One limitation of this study in its applicability to Model University is the representativeness of the samples, in both the quantitative and the qualitative data. Although the invitations to fill out the student surveys were extended to the entire eligible population, there is likely self-selection bias in who responded to the request to fill out the surveys, especially since the response rates for the surveys were all below 30%. As can be seen in Table 2, the responding populations do not perfectly correspond to the population, and there may be additional, underlying levels of satisfaction or expectation that would motivate students to respond to a survey. While this is a concern to take seriously, it is also true that results were compared to other results within the same survey. That is, self-selection bias is at work for those who were a part of the commons and those who were not a part of the commons. If dissatisfaction is a motivation for filling out a survey, then it may be likely that would be equally true for those in the commons and those not in the commons, especially since none of the surveys were directly about the commons. Representativeness is also a limitation in the qualitative data, with self-selection bias affecting those students who chose to respond to our request for an interview.

Another significant limitation of this study is the nature of selection into the residential commons for the years studied. During those years, students were not randomly assigned to the commons but rather had to indicate a willingness to be placed into them. Therefore, there is self-selection bias for the entire population of the commons, a bias that would make truly determining the effects of the commons themselves difficult under any circumstances.

Finally, while the quantitative data was several years old, all the qualitative data was gathered during the fall of 2020 and the spring of 2021. Conducting interviews during a global pandemic was not only challenging, but this also affects the way results should be interpreted. Conducting interviews over Zoom likely affected transparency, and unusually heavy workloads affected access. Staff who were relatively new to Model, which were quite a few, had never experienced the university without social distancing restrictions. Additionally, the immediacy and overwhelming nature of the pandemic experience likely affected students' and staff's perceptions of their experiences.

# RESULTS

OUR FIRST RESEARCH QUESTION ASKS: WHAT IS THE RELATIONSHIP BETWEEN THE RESIDENTIAL COMMONS SYSTEM AND A STUDENT'S SENSE OF BELONGING? ADDITIONALLY, IS THIS RELATIONSHIP DIFFERENT FOR DIFFERENT STUDENT GROUPS?

To answer this question, *we first examined the extent to which participation in the residential commons system is associated with sense of belonging.* We conducted independent sample t-tests, comparing the overall sense of belonging for freshmen within the commons with the overall sense of belonging for freshmen not in the commons. Using the 2017 NSSE data set, we found that there is a statistically significant and moderate relationship between the sense of belonging scale and commons affiliation. Those in the commons had a lower sense of belonging. The effect is moderate, at 0.3 standard deviations, and it is statistically significant with  $p < 0.01$ . This relationship was confirmed using both YFCY 2016 and 2017 data. Within YFCY, the results of the t-test showed that the effect was moderate at 0.28 standard deviations, and statistically significant at  $p < 0.05$ .

Table 5: Independent sample t test, Sense of Belonging Scale

	Not in Commons	In Commons	t	n
<b>NSSE</b>	.35** (.57)	.04** (.62)	3	165
<b>YFCY</b>	.1* (.84)	-.18* (.86)	2.3	230

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . Standard deviations are reported in parentheses under means.

Following this finding, linear regressions were conducted to determine if any expected variables might predict commons involvement. In the NSSE data set, looking at sex, eventual GLO participation, athletic status, SES, first generation college student status, international student status, race, grades, and sexual orientation revealed no statistically significant relationship



between those variables and commons affiliation. In the YFCY data set, looking at sex, eventual GLO participation, athletic status, SES, ESL status, race, and current GPA, linear regressions showed almost no statistically significant relationships between those variables and commons affiliation. Only one variable had an observable relationship: those who would eventually join a GLO were slightly less likely to be in the commons (Coef. -.16,  $p < .05$ ). These findings are meaningful because they at least start to address the issue of self-selection into the commons. If the population of those in the commons had been significantly different from those not in the commons, then self-selection bias would be more likely.

Given this finding, we were interested in determining if ***the association of participation in the Residential Commons system and sense of belonging is different for different student demographics***. To answer this question, we conducted a linear regression with interactions to consider the relationship between commons affiliation and sense of belonging for different groups of freshmen. We found not statistically significant, observable relationship based on race, income status, athletic status, or eventual Greek letter organization participation status. These results were consistent for both the NSSE 2017 data set and the YFCY 2016 and 2017 data set.

This lack of an observable interaction is meaningful because the mission of the commons is to provide a community for those who may need it. Specifically, the commons are intended to create an equitable experience of belonging and community for those who may have a harder time finding belonging at Model University: students of color, students from low SES backgrounds, students who are not athletes, or students who do not join GLOs. Had the relationship between commons affiliation and sense of belonging been positive and the interactions been positive and statistically significant, Model could possibly conclude that the commons were achieving their mission. The lack of interaction, however, coupled with the negative relationship found between commons affiliation and sense of belonging generally, calls into question the efficacy of the residential commons model.

Table 6: Regression Analysis Summary, DV=Sense of Belonging

Variable	NSSE (n = 156)	R <sup>2</sup> for NSSE	YFCY (n = 219)	R <sup>2</sup> for YFCY
<b>Sex</b>	0.06 (.12)		-.16 (.11)	
<b>Commons affiliation</b>	-.28 * (.11)		-.18 (.11)	
<b>Race</b>				
African American	.09 (.36)		-.86 ** (.25)	
Asian	.06 (.17)		-.03 (.16)	
Hispanic	-.41 (.24)		-.45 * (.21)	
<b>Low SES</b>	-.05 (.12)		.24 (.13)	
<b>Eventual GLO participant</b>	.11 (.12)		.47 *** (.12)	
<b>Athlete</b>	.15 (.13)		.2 (.16)	
		.11 (.04)		.17 (.13)
<b>Interaction of Commons Affiliation &amp; Race</b>		.14 (-)		.09 (.06)
African American	1.44 (.48)		.00 (.48)	
Asian	-.25 (.37)		-.08 (.33)	
Hispanic	.28 (.46)		-.1 (.4)	
<b>Interactions of Commons Affiliation &amp; [Variable]</b>				
Low SES	.22 (.26)	.06 (.04)	-.07 (.25)	.03 (.01)
Athlete	-.28 (.25)	.07 (.06)	-.35 (.34)	.03 (.02)
GLO participation	-.06 (.22)	.06 (.05)	-.48 (.25)	.1 (.09)

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Standard errors are reported in parentheses under means. Adjusted R<sup>2</sup> is reported in parenthesis under R<sup>2</sup>

To further explore factors that may influence sense of belonging in the residential commons environment, we looked at the relationship between substance use, sense of belonging and academic engagement. This led us to ask: ***to what extent is participation in the residential commons system associated with rates of drug and alcohol use?***

To begin to answer this question, we first utilized the YFCY data set to look at the relationship between alcohol consumption and sense of belonging. Running a linear regression established that beer drinking could statistically significantly predict a positive sense of belonging,  $F(1, 313) = 16.57, p < .001$  and beer drinking accounted for 5% of the explained variability in sense of belonging. Wine consumption also statistically significantly predicted a positive sense of belonging,  $F(1, 315) = 24.59, p < .001$  and accounted for 7% of the explained variability in sense of belonging. This finding is noteworthy, illuminating the connection that Model students make between alcohol consumption and an increased sense of belonging. Given the institution's large GLO population, and relevant literature tying GLO affiliation, alcohol use, and sense of belonging together, we ran an additional regression. Looking at beer drinking, wine consumption, and GLO participation, beer drinking decreased in statistical significance. However, wine consumption remained statistically significant ( $p < .001$ ) and GLO participation had the largest influence on sense of belonging ( $p < .001$ ).

Following these findings, we looked at rates of alcohol and drug violations, as well as the application of medical amnesty, as documented through Model's System of University Standards and Student Conduct between 2018 through 2020. A chi-square test of independence was performed to examine the relationship between residing in a residential commons building and substance use conduct violations ( $N=2,405$ ). Test outcomes showed a statistically significant relationship between living in a commons affiliated building and alcohol violations,  $\chi^2(1, N=782) = 64.26, p < .001$ . A significant relationship between living in a commons affiliated building and drug violations was also exposed in the data,  $\chi^2(1, N=403) = 59.73, p < .001$ . There was also a statistical relationship between residing in a commons affiliated building and medical amnesty being applied to a conduct violation,  $\chi^2(1, N=55) = 5.58, p < .05$ . There was no statistically significant relationship between upper class students' commons affiliation and substance use conduct violations. Given that a majority of incidents documented are attributed to first year students and that all first-year students in this data set were affiliated with a commons, we are unable to assume the relationship between conduct violation and living in commons affiliated buildings is causal or whether that relationship is just typical of any first-year residential community.

Table 7:  $\chi^2$  test for independence, student conduct violations

Violation Type	Frequency	%	$\chi^2$	df
<b>Alcohol</b>	782	32.5	64.26***	1
<b>Drugs</b>	403	16.7	59.73***	1
<b>Medical Amnesty</b>	55	2.29	5.58*	1

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Considering the positive relationship between the residential commons, sense of belonging and substance use, we then explored the relationships between living in a residence hall and beliefs about alcohol. CORE data provided the most robust insight into residential hall experiences for first- and second-year students around substance use. First, we conducted independent sample t-tests, comparing residential hall status and alcohol beliefs variables (see table 7). Of those who lived in a residence hall on the quad (N=289, M = 14, SD = 4.00) compared to those who live off the quad in apartments, townhouses, and other on-campus housing options (N=316, M = 14.7, SD = 4.04), students who lived in a residence hall demonstrated statistically significant higher acceptance of alcohol beliefs,  $t = 2.36$ ,  $p < .05$ . This finding highlights that students on the quad were more likely than those off the quad to accept alcohol's role in facilitating factors tied to sense of belonging.

To determine which factors were predictive of a student's acceptance of alcohol belief factors, we conducted multiple regression analysis. A baseline model was created with alcohol beliefs variables (see Table 8). From there we added in student characteristics, including residence hall status, race, athlete status, Greek affiliation, and gender. The model accounts for 3 percent of the variation ( $p < .05$ ) in the dependent alcohol beliefs variables, with residence hall status ( $t = 2.43$ ,  $p < .05$ ) and Greek affiliation ( $t = 3.36$ ,  $p < .01$ ) contributing to a greater likelihood of acceptance. Therefore, we can infer that the acceptance of alcohol beliefs is largely driven by living in a residence hall and Greek affiliation. Provided our previous findings, including the significant relationship between student conduct violations and students who belong to residential commons, this finding of significance was not surprising.

However, this did prompt us to inquire about the reverberating effect of alcohol use within the residential hall community, digging into the question: ***do other students' drinking behaviors impact their peers' sense of belonging and academic engagement?*** Utilizing the same set of CORE data to determine what factors significantly predicted secondhand harms (see table 8) from others' drinking, we conducted a multiple linear regression analysis. A baseline model was created using secondhand harm variables (see table 8). We then added in student

characteristics including residence hall status, race, athlete status, Greek affiliation, and gender. The model accounts for 2 percent of the variation ( $p < .01$ ) in the secondhand harm variables. The regression indicated that Greek affiliation ( $t = 2.61$ ,  $p < .01$ ) and gender ( $t = 2.15$ ,  $p < .05$ ) significantly predicted whether they experience secondhand harms from others drinking. In other words, being Greek or female at Model increases the chances that they will be impacted, through secondhand harms, by their peers' drinking. To further explore this, an additional model was run with secondhand harm variables, only including the statistically significant variable of gender and Greek affiliation. This second model accounts for 6 percent of the variation ( $p < .01$ ) and the relationship between secondhand harms, gender, and Greek affiliation remained statistically significant. This finding was unsurprising given the literature that supports disproportionate influence of alcohol harms within the Greek community, which at Model is largely female. While statistical tests have highlighted that membership in a GLO creates a sense of belonging for students, it concurrently exposes a significant relationship between GLO membership, personal and community harms tied to substance use.

Table 8: CORE Variables

<b>Alcohol Beliefs Variables</b>	<b>Secondhand Harm Variables</b>
<b>Do you believe that alcohol has the following effects?</b>	<b>In which of the following ways does other students' drinking interfere with your life on or around campus?</b>
...Breaks the ice	...Interrupts your studying
...Enhances social activity	...Makes you feel unsafe
...Makes it easier to deal with stress	...Messes up your physical living space (cleanliness, neatness, organization, etc.)
...Facilitates a connection with peers	...Adversely affects your involvement on an athletic team or in other organized groups
...Gives people something to talk about	...Prevents you from enjoying events (concerts, sports, social activities, etc.)
...Facilitates male bonding	
...Facilitates female bonding	
...Allows people to have more fun	
...Gives people something to do	
...Makes food taste better	
...Makes women sexier	
...Makes men sexier	
...Makes me sexier	
...Facilitates sexual opportunities	

Given these findings, we we're interested in the relationship between the residential commons and sense of belonging. We leveraged quantitative findings to inform discussions with students and staff. Specifically, we were seeking to answer: ***in what ways does the residential commons system contribute or not contribute to a sense of belonging?*** Although students and staff interviewed represented a diversity of Model identities (see appendix) there were common experiences tied to finding and promoting a sense of belonging in the residential commons and elsewhere on campus.

## SEEKING BELONGING IN THE RESIDENTIAL COMMONS.

**“I WANT THEM TO OWN IT”** As students reflected on their experience with the residential commons, they shared similar experiences about finding connections and participation. Students acknowledged that they were part of a commons but lacked an understanding that the commons experience was more than just a first-year residential experience. A common thread was the lack of recognition that the commons experience is something other than a grouping of physical structures. For example, Jared (junior) feels that:

**...There's not really a lot of interaction between like, the different buildings, or whatever commons in my experience. I just understood it as like, okay, these three buildings were part of the same community, we can have access to get in there. That's pretty much all I really understood about it.**

Several students understood that Main Street houses are somehow connected to the residential commons on the quad but were largely unable to connect the two. Instead, they framed the Main Street houses to just another upper-class living experience. The lack of connection with their respective commons was further exacerbated as students moved off the quad. Both Jennifer and Jared felt a disconnection with their commons in their first two years in college, and especially now as Juniors:

**So for my commons they were very involved, my first two years...They do a lot of movie nights which we really appreciated because me and my friends are like strong movie like critics... Now as a junior, you don't really feel the commons as much, because it's mostly (an) on the quad thing.**

Coupled with a lack of understanding the purpose of the commons, students are not fully aware of which activities or programs offered are specifically targeted at their commons identity. Tina (sophomore), when reflecting on social opportunities within her commons, was unsure of whether she has been attending commons events, *“I’ve been doing a few of the residential commons (events)... or maybe they’re not residential commons events. Just little like events that our RA on our floor sets up that kind of thing...”*

Faculty directors provided a clear understanding of their individual commons mission. When describing training with RAs, faculty members expressed their focus on creating community by asking students thought-provoking questions to ensure students on the same floor do not feel alienated such as, *“How would you change that, what could you do differently in bathrooms, walking up and down the stairs that would create that atmosphere?”* There is a focused effort placed on encouraging personal responsibility amongst students to take ownership of building maintenance *“because I want them to own it, and I want them to feel me a need to respect it and ask others to respect it.”*

Residential life and student life shared a mixed understanding of the purpose and structuring of the commons while noting insights on implementation and continued challenges. Faculty members emphasized dedicating efforts to community building by providing a two-week training in August focused on building relationships. One faculty director shared the training is focused on ensuring student leaders are made a priority and understand that they are essential to the mission of the commons. She shared:

**It's all about letting them know that we care about them and that we want them to care about each other, so we do exercises for example where we put them in pairs and we teach them how to do active listening. And we have them interview each other as a way of getting to know each other.**

Staff members highlighted issues with training, placement, and assignment of resident assistants. Many students who serve as RAs are students of color or come from a lower socioeconomic status, which creates a challenging dynamic when trying mediating conflicts, holding their residents accountable to policies, or even programming for belonging. A member of residential life staff highlighted this challenge:

**I think for our student population, it's really difficult sometimes for them to even facilitate those conversations. Because I think they're still trying to make meaning out of who they are, who they are within this very like white privileged setting of Model and so it's like how could you help somebody else through some of these conversations if you're still figuring that out yourself developmentally?**

## “LIKE, DO WE MEET THE STUDENTS WHEREVER THEY ARE? OR DO WE PUSH THEM

**BACK?”** Staff highlighted challenges with freshmen and sophomores being located “on the quad” and juniors and seniors being located “off the quad” as a further loss of affiliation, which is a prevalent issue for upperclassmen. Staff members shared working with *students “who don’t have an identity with the residential common”* and having to figure out if they should help build that connection or program for where students are at developmentally. When addressing this challenge, a member of residential life shared, *“Like, do we meet the students wherever they are? Or do we push them back?”*

Staff interviews also revealed opportunities to address some of the silos occurring with the residential commons, specifically that orientation leaders and RA’s are currently disconnected in their operations. However, attempts to connect these roles, which includes efforts for student leaders to train together, are in progress. Recently, orientation leaders were assigned to specific commons to ensure they are informed and can help disseminate information about activities and programming for the residential commons to make stronger connections.

## FINDING BELONGING OUTSIDE OF THE COMMONS.

### “I’VE BEEN ABLE TO BUILD CONNECTIONS, IN A WAY THAT NOT A LOT OF THE MODEL STUDENTS HAVE...”

Although many students struggled to find their niche while navigating their transition to college, several students saw a targeted summer bridge program as an integral role in their search for community at Model University. Jasmine (sophomore) highlighted how spending the summer on campus was fruitful because she was able to find a group of friends and shared how it made her feel like she was not completely alone and *“new to the campus when fall started like I had some sense of like how Model worked.”* Jennifer (junior) shared a similar sentiment, stating that some of her *“best friends come from [the undergraduate studies scholars program].”* Several other students highlighted this bridge program when asked about making connections to their peers.

Interestingly, two freshmen, Elaine and Sadie, shared perspectives that mirrored Jasmine and Jennifer’s experiences. However, their experience included a specific shared hardship, which was navigating their college experience during a pandemic. Elaine noted:

***I’ve been able to build connections, in a way that I feel like not a lot of the Model students have because I did come early in the summer with a few other students and got to experience some of the initial waves of quarantining...***



Sadie, who elected for remote learning during her first year at Model felt that: *“It’s been very difficult having to be at home. I feel like I haven’t developed any friendships, to be quite honest.”* When asked about her residential commons affiliation, given that even remote students were assigned to a commons during the 2021 academic year, Sadie mentioned attending some virtual programs. However, those programs did not create the social connection she desired. When asked about how she has made friends, Sadie shared:

**I think the only ones that come to mind are just being in a culturally based organization, where I get to meet women of color and that’s very empowering... but they meet every Wednesday, so it’s not like I’m necessarily building the best friendships, but it is reassuring to be part of those clubs.**

Beyond seeking friendships, students shared specific reasons for why they value leadership opportunities at Model. Several students shared that leadership opportunities provided them opportunities to become familiar with activities on campus. Jennifer (junior) shared that her experience as a Resident Assistant (RA) exposed her to training that allowed her to learn about the campus and shared that she gained inspiration by *“how close people would get to their RA.”* Similarly, another student shared how taking a leadership role to mentor other students by giving them advice helped him fit in. Jared (sophomore) found an opportunity to lead chemistry labs meaningful:

**It made sense to me to, like, I want to help. Like, you know, people who are minority try to like fit in and give them advice. So I was like, there was really, I didn’t really find a reason not to do it. It was like, my first year, I had like, my group of friends around me. And so it was kind of like this group of [undergraduate studies scholars program] students that we all take physics. So that’s kind of like a support system. I thought it was like, a good idea to try to, like help others have that.**

In each case, it is seen that initial socializing experiences outside of the commons shaped student perspectives about where to find community and engage on campus. Students also internalized the value of time invested at specific clubs, departments, or with certain friends. Engagement with communities that cultivate a sense of belonging at Model is limited for some students. Student expectations of finding community require a significant amount of time and effort in addition to navigating the college experience. Students also view socializing on campus as a challenging experience if they do not immediately find a sense of belonging. Institutional support for this area is likely to help propel students to transition and find community more easily as they begin and strive to persist through college.

## **“SPACES LIKE THE CULTURAL CENTER ARE SO IMPORTANT BECAUSE IT IS LIKE A GETAWAY.”**

Students were asked to share where/ who they receive the most support from and whether they feel they have opportunities to be themselves while attending Model. Though students shared varying opinions, they were dominated by having to adapt depending on the circumstances presented to them. Tina (sophomore) emphasized her reliance on her roommate as someone to talk to while at Model by stating, *“I’d say my roommate probably knows the soonest because we kind of you know, rant about things that aren’t going well to each other. Yeah, and other than that, I don’t think a lot of people at Model.”*

For some students, staff at Model were able to direct their ability to find community and connect with students who had similar backgrounds. For example, Sadie (freshman) expressed challenges with attending a predominantly white institution:

**So it was very kind of shocking for me to come to Model, given that it was a PWI... so when I started talking to one of my advisors about it, she recommended that I join a culturally based organization so I could talk to, you know, upper-class students or students that are in the same grade level as me, that also kind of resonates with those backgrounds so you know, women in STEM or women of color.**

Students at Model experience a heightened sense of identity awareness after having chosen to attend a predominantly white institution. Having to acclimate to the social and academic environment at Model comes with an appreciation for culturally based organizations that promote belonging for students of color. Iris (sophomore) shared that people at Model are unwilling to take themselves outside of their own ways and accept that some people might have different identities and socioeconomic statuses. She shared that she has two jobs, and that is something that the students she encounters at Model cannot relate to. Iris appreciated having spaces like the cultural center to lean on.

**People have said racial things like you know it's just like that stuff happens a lot here. And I think that's why spaces like the cultural center are so important because it is like a getaway from that experience like you're walking into a space that is for you. And that's something that like the commons isn't.**

Students also expressed concern for the systems currently in place to support underrepresented populations. When asked what Model University could do to help students be themselves on campus and find community, Jennifer shared she would recommend more of a POC presence on campus, but *“If the systems in place aren't there to help them, then why would we bring them into the system here at Model if there's nothing in there to help them transition from being first gen or something like that.”*

**“(THERE ARE) A LOT OF SOCIAL INEQUITIES LIKE... AN US VERSUS THEM SITUATION.”** The awareness of socioeconomic statuses manifests itself in a variety of ways, and several students shared how they found meaning from this awareness through specific experiences at Model. Some students realized they could not forfeit time because of having to work and others shared having to budget their money and having to miss specific opportunities because of other priorities. For example, Jasmine (sophomore) who has an on-campus job working in a lab with one of her professors shared she had to budget her money appropriately:

**I have to like budget how much money I can spend like how many times I can go to town with my friends and like go get food, because like that money isn't just like me for, like just to spend like I have to like use that money for myself because like as like pay for like my college like everything that I need like is like really reliant on me.**

Jennifer (junior) shared the awareness that for her came from thinking about participating in rugby and the missed opportunity she felt after not being able to attend a national tournament held overseas. Jennifer shared that the expense associated with this opportunity was not feasible because of how high the cost was and shared her encounter with students who returned from the tournament *“so when they came back they were talking about it and I was like, I don't know what you're talking about I didn't go.”*

Similarly, Sadie (freshman), reflecting on her own experience, shared having to miss opportunities due to having to accommodate her work schedule or office hours opportunities. However, she shared being able to find comfort through culturally based organizations by adding:

**In light of trying to budget my time correctly and actually retain information and understand what I was learning. I would just have to kind of prioritize my salary over, being in certain clubs, which was a little tough because it made me feel a little bit more isolated. But yeah, I think it made me appreciate [the culturally based organization] even more.**

Though students arrive at Model University from a variety of backgrounds, a common revelation during staff interviews was the prevalence of social structures. Greek letter organizations (GLOs) have physical spaces that come with the privilege of being able to build community more easily due to having spaces to socialize, which in turn create an exclusive community. Student life staff who work with GLOs would expound on this point by sharing a repercussion created, which is *“a lot of social inequities like when we're thinking about an us versus them situation.”* They emphasized the second part of this issue with GLOs by stating there are differences in alumni donations and involvement, which also *“create these social structures within our organization.”*

One staff member further noted the importance of social capital for a campus such as Model University by adding the following:

**I think that you flock to the identity that you feel gives you the most value. And I don't think that our commons identity is giving them social capital, I don't think it's giving them the cool factor. I don't think it's actually bringing them to any, like great programming or life-changing experiences or opportunities. And I think they're identifying more with, like, what's giving back to me.**

During an interview with a staff member from the cultural center, student challenges regarding support, sense of belonging, and food insecurity were brought to light to emphasize additional challenges. The cultural center on campus has a large lounge where students are able to do many things, such as take a nap and know that it is a *“no judgment space”* where everybody is welcomed. Staff members have noticed students who visit the cultural center have become regulars for different reasons, some even taking advantage of the left-over food from events. For example, Emma shared:

**I just talked to one student who mentioned that “I haven't had anything to eat all day.” Then, of course, there are so many variables, whether they just didn't get a chance to get food or, I don't know, there are a lot of assumptions, right?**

Qualitative interviews provided insight as to why students may not feel a sense of belonging on campus and the disconnection with the residential commons. The lack of sense of belonging within the commons is especially felt for underrepresented populations who felt the need to find community in places outside of the residential commons in culturally based student organizations. Participation in the residential commons system makes the association with sense of belonging challenging as many students do not understand the purpose of the commons or which activities are even held by the commons. It's clear that students recognize that their commons affiliation follows them off the quad -- but have yet to recognize tangible

ways to tap into that community. Staff, faculty, and students all acknowledged perceived challenges -- whether physical or symbolic -- that make programming for the commons difficult. The lack of a singular vision for the commons as a whole, exemplified by faculty directed differences in how their individual commons should be run, makes collaboration difficult and only adds to the confusion for students. The lack of physical structures for programming "off the quad" poses additional challenges with building a sense of belonging for upperclassmen. Greek letter organizations are more likely to foster community, especially for upper-class students, outside of the commons because of the physical spaces available to them that allow them to build an exclusive community.

## OUR SECOND RESEARCH QUESTION ASKS: WHAT IS THE RELATIONSHIP BETWEEN THE RESIDENTIAL COMMONS SYSTEM AND ACADEMIC PERFORMANCE?

For this research question, academic performance was operationally defined as academic success and academic engagement, allowing us to understand both desired academic outcomes -- defined here as academic success -- and the kind of behavior that traditionally leads to these outcomes -- defined here as academic engagement. The first question asked about academic performance, then, was if participation in the residential commons system is associated with academic success. For this question, academic success was operationalized as grade point average (GPA) and retention. Higher GPAs for those in the commons and higher rates of retention would be evidence of a positive relationship between commons association and academic success. For this analysis, we conducted independent sample t-tests, comparing term GPA, overall GPA, and retention for those in the commons and those not in the commons. The results for GPA were mixed. Those in the commons had a slightly lower term GPA (3.35 rather than 3.39,  $p < .01$ ), but a slightly higher cumulative GPA (3.33 rather than 3.30,  $p < .01$ ). There was no statistically significant observable relationship between commons affiliation and retention.

The lack of an observable relationship between commons affiliation and retention is not surprising, given Model's already extremely high retention rate of around 94% (Model University, n.d.a). The mixed relationship between commons affiliation and GPA is more difficult nuanced, however. While the differences are not large, they are statistically significant. Ultimately, the data show no clear relationship between commons affiliation and the chosen measures of academic success -- which include GPA and retention -- making it unlikely that the commons are having a significant impact on academic outcomes.

***To what extent is participation in the residential commons system associated with academic engagement?*** A higher level of reported academic engagement would be evidence that the commons' environment may be creating the conditions for increased academic engagement.

For this analysis, we conducted independent sample t-tests, comparing the academic engagement of freshmen within the commons with the academic engagement of those not in the commons. In both the 2017 NSSE data set and the YFCY 2016 and 2017 data set, we found no observable relationship between commons affiliation and academic engagement.

Although living-learning communities (LLCs) have been associated with higher levels of academic engagement (Wilson et al., 2015; Zhao & Kuh, 2004), Model's residential commons do not match traditional definitions of LLCs. This suggests that the specific academic programming of traditional LLCs may be a more significant contributor to academic engagement than the overall residential environment. In other words, the commons may not have a strong enough academic component to elicit greater academic engagement.

### OUR THIRD RESEARCH QUESTION ASKS: DOES A STUDENT'S SENSE OF BELONGING IN THE RESIDENTIAL COMMONS SYSTEM HAVE ANY RELATIONSHIP WITH ACADEMIC ENGAGEMENT?

Before looking at any interaction the commons might have with the relationship between sense of belonging and academic engagement, we first asked: **to what extent is a student's sense of belonging associated with academic engagement?** This allowed us to establish a baseline relationship before examining interactions. Given the literature, it is expected that sense of belonging would have a positive relationship with academic engagement, and there is no reason to believe this relationship would be any different for Model students. For this analysis, we conducted a linear regression to describe the relationship between sense of belonging and academic engagement. In both the NSSE and YFCY data sets, there was a small but statistically significant relationship between sense of belonging and academic engagement. In the NSSE data set, academic engagement was 0.19 standard deviations higher, with every unit change in sense of belonging ( $p < .01$ ). In the YFCY data set, academic engagement was 0.12 standard deviations higher for every unit change in sense of belonging ( $p < .01$ ).

Table 9: OLS Estimates, DV=Academic Engagement

Variable	NSSE (n = 331)	YFCY (n = 324)	R <sup>2</sup>
	.19**	.12**	0.05
<b>Sense of Belonging Scale</b>	(-0.06)	(-0.04)	0.03

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . Standard errors are reported in parentheses under means.

This positive relationship suggests that the expected relationship between belonging and academic engagement holds for students at Model University. With this relationship established, we next asked: ***does a student's involvement in the residential commons system affect the relationship between sense of belonging and academic engagement?*** A linear regression with interactions showed that there is no statistically significant, observable interaction of commons affiliation with the relationship between sense of belonging and academic engagement.

These results seem at odds with the results of the previous questions. That is, if commons affiliation has a negative relationship with sense of belonging, as seen in question one, and sense of belonging has a positive relationship with academic engagement, as seen earlier in this question, then we would expect for the commons also to have a negative relationship with academic engagement. However, those were not the results of question two. It was expected, then, that something else in the commons may be impacting that relationship, something mitigating the potential effects a lower sense of belonging might have on academic engagement. If there is such an interaction with that relationship, however, it is not observable. The qualitative data support these findings. Students did not describe ways in which the commons impacted their ability to belong or academic experiences. Rather, they spoke about the commons as a residential structure. This tells us that while Model may have established the commons as an intervention to encourage and sustain sense of belonging and academic engagement, there are factors that have prevented students from experiencing it in that way.

# DISCUSSION

As we examined the extent to which participation in the residential commons system was associated with student engagement and academic success, each research question generated the need for further discussion. Our first research question focused on the relationship between the residential commons system and student sense of belonging. The findings for this question showed that those in the commons had a lower sense of belonging, which was confirmed by using both NSSE and YFCY data. We were also interested in whether this relationship was different for the different student groups. However, we found no statistically significant, observable relationship based on race, income status, athletic status, or eventual Greek letter organization participation status. These results were consistent for both the NSSE 2017 data set and the YFCY 2016 and 2017 data set.

We then explored factors that may influence sense of belonging in a residential commons environment, which prompted us to ask: to what extent is participation in the residential commons system associated with rates of drug and alcohol use? We found a positive relationship between the residential commons, sense of belonging, and substance use. More specifically, we found a significant relationship between student conduct violations and students who belong to residential commons. By exploring the relationships between living in a residence hall, we found that students who lived in a residence hall demonstrated a statistically significant higher acceptance of alcohol beliefs. To understand alcohol's effect within the residence hall community, we asked: do other students' drinking behaviors impact their peers' sense of belonging and academic engagement? The findings indicated that the relationship between secondhand harms, gender, and Greek affiliation are statistically significant.

Our second research question focused on the relationship between the residential commons system and academic performance. We explored whether participation in the residential commons system is associated with academic success. However, there was no statistically significant observable relationship between commons affiliation and retention. Additionally, there was a mixed relationship between commons affiliation and GPA as those in the commons had a slightly lower term GPA but slightly higher cumulative GPA. We then explored whether participation in the residential commons system is associated with academic engagement. Using the 2017 NSSE data set and the YFCY 2016 and 2017 data set, we found no observable relationship between Commons affiliation and academic engagement.



Our third research question focused on the relationship between a student's sense of belonging in the residential commons system and academic engagement. We explored the extent to which a student's sense of belonging was associated with academic engagement and found a small but statistically significant relationship between sense of belonging and academic engagement using both the NSSE and YFCY data sets. We then explored whether a student's involvement in the residential commons system affected the relationship between sense of belonging and academic engagement. However, we found no statistically significant observable interaction. A more detailed discussion of these findings can be found below.

### WHAT IS THE RELATIONSHIP BETWEEN THE RESIDENTIAL COMMONS SYSTEM AND STUDENT SENSE OF BELONGING? IS THIS RELATIONSHIP DIFFERENT FOR THE DIFFERENT STUDENT GROUPS?

Given the literature connecting residential communities and sense of belonging and in light of the stated purpose of the residential commons system, the negative relationship between commons affiliation and sense of belonging merits further discussion. As mentioned in the limitations section, there could be self-selection bias at work on a few levels -- first in who decided to respond to the institutional surveys voluntarily, and second in who decided to participate in the commons during the years evaluated. However, when it comes to the first possible source of self-selection bias, the surveys given were not about the commons explicitly, and results for those in the commons were compared with others who also self-selected to take the survey. Additionally, when it comes to the second possible source of self-selection bias, regression analyses of both the NSSE and YFCY data sets showed that almost no variables of interest had an observable relationship with commons affiliation. Of course, the students who self-selected into the commons were likely different somehow from those who did not, but the findings of this research project suggest that it is still worth considering that the commons might not be fulfilling their intended purpose.

The qualitative data collected confirms, at the very least, that the commons may not be contributing positively to students' sense of belonging. While the staff and faculty involved in the commons' formation spoke of its purpose of providing community, most of the students interviewed did not identify the commons as a source of community. Instead, when they spoke about finding community, they spoke about finding it in other groups, particularly groups centered around identity. For all but one of the students, it was almost as if the commons were not a feature at all. The one exception was a student hired as a resident assistant for the commons. Staff who were not personally invested in the commons confirmed this, with several saying that juniors and seniors had to be reminded of their commons affiliation, that the commons were not a source of identity for them. None of the students interviewed had any animosity towards their commons, just indifference. One staff member suggested that commons identity had greatly improved for freshmen and sophomores since its inception, particularly during the pandemic. Another staff member noted that the quality of the resident assistants had improved over recent years. It is possible that a negative impact of the commons during its first few years --the years of our quantitative data-- had improved into something more neutral, as seen in our qualitative data.

Why might the residential commons not be instrumental in creating a place where students feel “*known and valued*”? One staff member mentioned that the issue might be with the faculty doing the programming. Faculty involved in the commons spoke highly of its ability to help students form a community, but also noted the disappointment felt when students did not attend programming, saying “*it’s hard to get them to attend the events we organize.*” However, another staff member explicitly said that the commons do a “*good job in regards to programing and experiences,*” but that the seemingly random nature of being placed into a commons and the lack of a identity associated with that placement meant that students “*don’t feel any sense of affinity to that commons in any shape or form. They don’t understand the purpose of it.*”

Although the primary quantitative data did not address juniors’ and seniors’ sense of belonging in the context of the commons, the themes of physical space and location consistently came up in interviews, particularly as it related to juniors and seniors. Upperclassmen, who had the “off the quad” experience, were portrayed as feeling a serious disconnect with activities and spaces “on the quad,” where the underclassmen lived, and where the commons were perceived to be. That featured heavily in identity. As one staff member told us:

**What I'm normally working with are the juniors and seniors and that off the quad experience, so I'm usually working with folks who don't have an identity with the residential commons... so that's kind of a hard part for me, because they don't feel that affiliation with their commons. And so it's like, do I push them back to do that? Or do we program for where they're at?**

In addition to campus geography, available space was also an issue for juniors’ and seniors’ sense of belonging. Several staff members mentioned the lack of space -- particularly in contrast to physical space in fraternities and sororities -- as a barrier to off the quad social events. In reference to the social spaces that fraternities and sororities have, one staff member said:

**...they were built with social spaces inside of them. So their basements and their lounges... creates a really great community, but nobody else has that community, and nobody else gets that experience.**

Additionally, one interviewee attributed some of the success of the cultural center on campus, partially, to its lounge space.

Finally, because of the university’s desire for the commons to provide a community for those who need it, the commons could be especially important for students of color, low-income students, or those who ultimately do not join Greek letter organizations if the system can be changed and leveraged to encourage belonging for those students. In interviews, students of color spoke at length about feelings of alienation and racism on campus. Although some of those students did find significant belonging in other organizations on campus, the commons were not identified as a major community source. The potential for positive interactions exists, however. At least one staff member spoke about the possibility that the commons structure

provides for learning about and responding to racism on campus, if resident assistants could be trained for those kinds of conversations.

## ALCOHOL'S GRIP ON CAMPUS

Model University is not unique in students' choices to consume alcohol. As one staff member offered, *"...the Model student belief is that I'm going to study and focus on my academics, and then I'm just going to drink my face off."* Our findings highlight the prominent role that alcohol plays when students internalize harmful beliefs about alcohol and belonging, as well as the adverse effects of other students' drinking. While YFCY data did not show a statistically significant relationship between living in a commons and reported alcohol use, it did show a positive relationship between overall sense of belonging and consuming alcohol.

As one student shared, alcohol plays a pivotal role in building connections with their peers and social life on campus:

**...if I were to drink, I would know a lot more people. But just because I don't do it, I don't know a lot of people. And so I feel like that's kind of one of the main ways that people socialize here...if you drink, you will probably make more friends.**

The data supports this notion, highlighting that first and second-year students living on the quad and students who belong to a GLO believe that alcohol affects social aspects of belonging: connection, conversation, bonding, and perceptions of attractiveness. Tina, a sophomore, echoed how intertwined substance use and forming friendships within her commons were as early as orientation. Reflecting on her first week, she added:

**My suitemates and I were hanging out outside, they're like, Oh, ...there's a party here. Do you want to come along? And I said, Sure. And we got to the building...all I could smell was just like a cloud of pot and beer and a ton of people packed into a tiny dorm room and I was like, you know what? Thanks for inviting me. It seems like I would be really uncomfortable in there. I think I'll just head back to the dorm.**

Tina further noted how this early experience negatively impacted her ability to find connection with her roommates and other students she lives with in the commons: *"I definitely feel like my social interactions are very limited because I'm not comfortable at parties."*

This student's experience also highlights additional findings of the second-hand harm students experience as a reverberation of other students' substance use. Quantitatively, we know that at Model, students who identify as female were more likely than others to be negatively impacted by others' drinking. This is also the case for members of a GLO. This manifested in interrupted studying, feeling unsafe, messing up their living space, and preventing enjoyment or involvement in extracurricular activities.

Lastly, the relationship between living in a residential building and a substance use conduct violation was statistically significant. However, this is unsurprising, given one residential life

staff member's perspective on the lack of accountability for students who are found responsible for violating the alcohol policy on campus. Although Model's points system is

**very well communicated to students, there's sort of like a never-ending number of points that you can get... [some] students think that magic number is 11, and (the student narrative is) that if you get more than 11 points, something terrible is going to happen... but nothing's ever happened to students here, they don't suspend folks for like alcohol violations and having more than 11 points... we have no punitive measures in place, even if it looks like we do and students know that.**

This perceived lack of accountability through the conduct system – from both students and staff -- does not support curbing behavior seen by students on campus. In several internal reports and documents provided by Model University, there is a recurring theme of recognizing the significant hold alcohol has over students' social scene and the impact on their wellbeing. However, it appears that while the problem has been acknowledged, there have not been changes implemented to address that directly.

Throughout our interviews, we were met with a mix of apathy and resistance when staff spoke about alcohol's presence in Model's social culture. Everyone agreed that alcohol is a substantial problem on campus, but quickly identified factors that stop them from addressing it in their professional roles. Debra, from residential life, shared that she

**...talked with my staff recently and I was like we need to do some alcohol alternative programming... because they're just missing here... I don't know why the commons isn't doing programs on Thursday nights, Friday night, Saturday nights... there's this whole like well we're fearful that folks won't attend and I'm like, and maybe they won't, but you're not really giving people an option to engage in something different.**

While several students agreed that they feel their social opportunities are limited on campus because they choose not to attend parties, some students shared a different experience tied to peer pressure, alcohol, and socialization spaces. Tessa (junior) recalled:

**...I've never been judged for choosing not to drink, but that may not be everyone's experience... Last semester, I was at a fraternity party... there was a guy who doesn't drink because he's Muslim, and everyone was totally accepting of it, we were playing [beer pong] and his friends would drink for him instead of him drinking... [drinking alcohol is] not totally necessary [to fit in] but some people probably feel pressured.**

The perceived necessity of alcohol to find belonging on campus supports Model's desired motivation to make the commons a place for students to find community if they need it. This, coupled with the negative association between the commons and belonging, reinforces the importance of continuing to look for what can make the commons such a place.

## WHAT IS THE RELATIONSHIP BETWEEN THE RESIDENTIAL COMMONS SYSTEM AND ACADEMIC PERFORMANCE?

There is no statistically significant observable relationship between the residential commons system and academic performance. Further, both NSSE and YFCY data sets found no observable relationship between the residential commons and academic engagement. Because Model attracts and retains high achieving students, as exhibited by their 94% first year retention rate (Model, 2021), the lack of a relationship between commons affiliation and retention -- in addition to the mixed findings surrounding GPA -- is not surprising. Little room for improvement exists in those measurements. However, the lack of an observable relationship between commons affiliation and academic engagement is notable for a residence system that self-identifies as a living-learning community.

Not only was there no relationship with the overall academic engagement scale, but there were no observable differences with behaviors that would be expected for a community that has intentional connections with faculty. For example, students in the commons were no more likely to report *“working with a faculty member on activities other than coursework,”* or discussing *“course topics, ideas, or concepts with a faculty member outside of class”* in the NSSE data set. Also, in the NSSE data set, there were no substantial and observable relationships between commons affiliation and peer academic behaviors, such as discussing course material outside of class. It is worth noting, however, at the time the survey was collected, commons were not yet assigned by first year seminars, so there were not necessarily any overlapping courses to encourage such behavior. These results indicate that there may be room for improvement in how the commons facilitate academic engagement for students.

When speaking with students about the ways in which academic engagement is manifested within the commons structure, one student shared that academic engagement happens mostly outside of the commons: *“I work at a greenhouse lab on campus, I'm doing research and one of my professors... I'm like really grateful and lucky for that, like, opportunity.”*

Several staff members spoke about the value that live-in faculty bring to the residential commons experience but highlighted their commitment to community building initiatives versus a focus on academic engagement initiatives. As a member of the Residential Life team highlighted:

**It is very challenging when some of the faculty are saying... I want to do all these like lower-level programs...from my perspective, their unique contribution to this situation is the academic components of this, involving the FYEC faculty members, getting people to come and do additional fireside chats lectures, you know, I'm just trying to bridge some of that curricular to co-curricular experiences, that's an area of expertise staff don't have (that the faculty do).**

It became clear that challenges around implementing academic engagement activities in the commons often led back to a lack of shared vision or understanding regarding the commons' goals and purpose. While the perception is that faculty view the commons as a plus, the faculty role is not clearly defined. Each faculty director we spoke with has their own vision for their individual commons, and this is often in conflict with, or simply does not engage, residential life staff.

## DOES A STUDENT'S SENSE OF BELONGING IN THE RESIDENTIAL COMMONS HAVE ANY RELATIONSHIP WITH ACADEMIC ENGAGEMENT?

While findings showed a small but statistically significant relationship between sense of belonging and academic engagement, there was no statistically significant, observable interaction of commons affiliation on the relationship between sense of belonging and academic engagement. Student sense of belonging predicted a slightly higher level of academic engagement, as the literature would support, but that prediction was no different depending on commons affiliation. This lack of an observable difference complements the results found through student and staff interviews. In those interviews, students did not describe the commons' impact on their social or academic experiences.

## OTHER FINDINGS

### RESISTANCE TO CHANGE & STAFF TURNOVER

Interviews with staff highlighted resistance to change, which plays an integral role in some of the challenges with the residential commons. Anna, a staff member, described the resistance found on campus by noting how challenging it is to expand the reach of late night programming beyond the same 10-15 students. She described any kind of programming after 7:00pm on a weekend as receiving *"a ton of pushback."* Rachel, another staff member, supported this claim during a separate interview by expressing that staff need opportunities to learn and understand what is happening at Model and how to come together as a larger unit against the current culture. Rachel elaborated on this by describing an event that, despite being quite costly, could not be scheduled in the evening because of potential conflicts with parties:

**So we were going to spend \$25,000 on two speakers, who were going to come at 4:30 in the afternoon...anything after seven o'clock will likely not be successful....But literally, no one's willing to do the work to make the change. And that is not just around alcohol, that's around the social structure, that's around the diversity that exists. Like, students are quick to complain about it. They are not quick to do something about it. It is really mind-blowing to me the culture that exists here like I've never seen anything like it before.**

Changing personnel is another finding that poses an additional challenge to the residential commons. One commons faculty director noted the issues explicitly with the integration of

offices and said that it results from changing personnel. The frequent turnover she has experienced working with Residential Life staff and specifically the high turnover of the area director role has proved challenging. In fact, one staff member indicated that a new faculty member teaches an FYEC every two to four years, which means students do not share a common experience with students that came before them. This may also contribute to a lack of affinity to a particular commons. One faculty director shared the following:

**I think, a commons model succeeds on the basis of stability... it is about creating traditions. It is about creating a kind of enduring culture to a place, it's creating a sense of home, which, you know, ideally involves stability...I just feel like most of the structural problems that we have had have been the result of that, trying to integrate these offices that have constantly changing personnel, you know kind of constantly changing methods of operating.**

While additional findings reveal specific challenges with the commons, conversations with staff highlight a resistant culture embedded within Model University that poses a more considerable challenge for the commons. Many staff interviews also indicated changing personnel which creates an added layer in regards to stability. With a resistant culture and a lack of stability, the commons cannot begin to address the residential commons' structural issues until change at Model is more widely accepted and systems are in place to mitigate the uncertainty that changing personnel may create when attempting to streamline integration from various offices.

## CONNECTION TO THE LITERATURE

### SENSE OF BELONGING

The findings of this study which are related to sense of belonging both confirm and complicate previous findings. Overall, the findings related to student groups of interest and their sense of belonging fit what was expected, given the literature. In the qualitative interviews, students of color reported lower senses of belonging, and in one of the quantitative data sets, both African American and Hispanic students reported a lower sense of belonging. These results confirm the findings of Gillen-O'Neel (2019), Johnson et al. (2007), and Spanierman (2013), which all found lower belonging in students of color. Although no observable relationship could be found between students from low SES backgrounds and sense of belonging in the quantitative, in the interviews, students from lower SES backgrounds did describe difficulties in finding community at Model University. This confirms the findings of Garvey et al. (2020) and Soria and Stebleton (2013), who had similar findings. The finding that those who eventually joined Greek letter organizations felt a higher sense of belonging fits with what is generally known about such organizations, though the fact that this belonging was felt *before* students joined any GLOs suggests that some selection characteristics may be at play, as Walker et al. (2015) suggest. Finally, the finding that those who reported higher rates of alcohol use also reported higher feelings of belonging works with studies such as Thompson et al. (2019), which found that students believe that alcohol use facilitates social bonding.

When it comes to the relationship between sense of belonging and the residential commons, the findings of this study do not fit what might be broadly expected given the literature. Because residential commons are designed to promote a sense of belonging and because these particular commons are self-described as a living learning community, which are often linked to higher belonging (Spanierman, 2013), it was expected that these residential commons would also have a positive relationship with sense of belonging, but they did not. This finding is a reminder that implementation matters. As Johnson et al. (2007) report, students' perception of supportiveness has an impact on students' belonging, regardless of what the residence halls structure may be called. The qualitative findings surrounding common space also echo the importance of implementation and confirm much of the findings of the importance of commons space (Brown et al., 2019; Chambless & Tackas, 2014; Devlin et al., 2008). Without much common space available to them in the context of the commons system, the juniors and seniors of Model University struggled to find community through the commons.

## **ACADEMIC PERFORMANCE**

The lack of an observable relationship between the residential commons and academic performance does not complicate or confirm the findings in the literature, though, again, it may point to the importance of implementation. Generally, LLCs are tied to overall academic engagement and success (Wilson et al., 2015; Zhao & Kuh, 2004), but, as mentioned elsewhere, the commons do not necessarily fit the most robust definition of an LLC. It could be that the residential commons at Model University are contributing to academic performance, but it may not be observable in the data available to us.

## **SENSE OF BELONGING AND ACADEMIC ENGAGEMENT IN THE RESIDENTIAL COMMONS**

Given the abundance of research that either directly or indirectly links sense of belonging with academic engagement (Hausmann et al., 2007; Ostrove & Long, 2007; Reason et al., 2006; inter alia), it is no surprise that this study found a positive relationship between sense of belonging and academic engagement, even though the relationship was small. When it comes to the relative strength or weakness of that relationship depending on the residential environment, there has not been much research. Therefore, the fact that no observable interaction was found for commons affiliation in the relationship between sense of belonging and academic engagement builds our understanding of how these three concepts might (or might not) work together.



# CONCLUSIONS

Since the implementation of the residential commons, Model University has made investments in the realization and potential of the residential commons for students. The institution's intent and “desire for every student to have a strong foundational community from the first day, a place where they experience tradition and build class unity, and where University affinity is cultivated” is noble, especially given the richly diverse students who matriculate to Model. Further, literature asserts that understanding the links between residence hall spaces, programming, and social networks is essential to an understanding sense of belonging.

This research project started with one big question: to what extent is participation in the residential commons system associated with student engagement and academic success? Our results show that participation in the residential commons is either not observably associated with engagement and success or not associated in the desired direction.

For freshmen in the early years of the commons implementation -- irrespective of commons affiliation -- reported sense of belonging was lower for African American and Hispanic students, as well as those who would not go on to join Greek letter organizations. For those same years, those in the commons reported a lower sense of belonging, and no student group studied had an observable difference in the relationship between commons affiliation and belonging. In interviews, current students generally did not associate the commons with a place to find community and belonging. In interviews with faculty and staff, this lack of association was partially attributed to a lack of common space for upperclassmen and programming difficulties for all students. In both survey data and interviews, alcohol consumption was revealed to play a large part in student belonging and college programming logistics on campus overall.

Finally, no consistent, observable relationship was found between participation in the residential commons system and academic performance. Although sense of belonging did have a small and positive association with academic engagement, the relationship between belonging and engagement was not observably different regardless of commons affiliation.

As the institution continues to move forward with their strategic planning, this report highlights several recommendations. One staff member, who is an alumni of Model, shared with the research team, “*I wish the residential commons had existed when I was a student... [I] didn't really find a home socially at Colgate... [the commons] provides you an identity that nobody can take away from you.*” There are strategic opportunities for the institution to leverage the opportunity of the residential commons as a tool toward greater sense of belonging and academic engagement for all Model University students.

# RECOMMENDATIONS

Based on the findings of this study, we offer the following recommendations to Model University. These recommendations are designed to help Model move forward with data-informed interventions to provide a meaningful residential commons experience that enhances sense of belonging and academic engagement.

## DEFINE A UNIFIED VISION OF THE COMMONS

While most know that Model has residential commons, findings highlighted gaps in student and staff knowledge tied to the bigger picture and how the commons is more than just a first-year residential experience tied to a seminar course. Clearly defining an overarching vision for the commons experience and developing an intentional four-year programmatic curriculum as a collaboration between faculty and staff will enhance defining the commons as a whole. While each commons have their own identities and traditions, these are largely driven by individual faculty vision and academic expertise. These different approaches exacerbate already siloed experiences between commons, further expose experiential differences “on the quad” versus “off the quad,” and challenge the sustainability of a commons identity if a residential faculty member were to leave their position.

Further, findings warrant establishing a defined mutual understanding of staff roles and responsibilities across the commons structure. Clearly defined roles for the commons can assist with the seamless integration amongst faculty, staff, and student leaders. The goal here should be to leverage staff strengths and expertise areas: allow residential life staff to focus on community development and faculty directors to focus on academic engagement. We also recommend that RAs report directly to residential life staff for community building, allowing a dotted line to faculty, as consultants on academic engagement programming. We believe this structure would be meaningful, especially in first year areas, as RA’s balance community building, belonging, conduct response, and programmatic expectations.

Additionally, the lack of understanding about the commons mission, goals, and assignments results in delayed connections with the commons, leading to challenges in finding belonging.

Currently, the individual commons each hold distinct identities, but lack a cohesive vision that builds purpose for the commons as a whole, regardless of which students are placed in. We recommend a more cohesive and student-centered marketing campaign that highlights the mission, purpose, and experiences of a range of students. This could highlight first year experiences, sophomore experience, and maintaining commons affiliation once “off the quad.” Marketing elements, including videos and social media marketing pieces that are student centered and leverage the student voice should share residential commons goals and opportunities. In order to reinforce the connection to one’s commons beyond just the first-year experience, we recommend a targeted marketing campaign rolled out to each class, tied to move-in at the start of each academic year. This could address opportunities to continue affiliation and belonging, in addition to reinforcing community norms and expectations.

## ENHANCE ACADEMIC ENGAGEMENT: FACULTY & PEERS

The findings of this study support the need and opportunity for greater academic engagement within the commons system. Given that the FYEC plays a role in populating the commons community, we believe that common faculty directors should work more cohesively with FYEC faculty to host events, dinners, and academic engagement opportunities in the commons. Astin’s (1984) research suggests that academics, student-faculty interactions, and engaging in extracurricular activities are critical forms of student engagement. Further, meaningful faculty/staff interactions can support increased academic engagement, especially for underrepresented populations (Crisp & Cruz, 2009). In addition, with the faculty directors having greater focus on academic engagement, and less on community development, we recommend providing a greater variety of services (events, office hours, lectures) for students to participate in academic programming either explicitly designed for the residents’ academic areas of interest or created to foster cross-disciplinary or interdisciplinary conversations. Additionally, we recommend the implementation of peer academic fellows within the commons community. In the same vein as the role the RA plays in community building, the academic fellow can provide peer connection that is critical to academic engagement behaviors (Astin, 1984). Supervised by the faculty directors, these student leaders could assist first year students as they transition to Model, tackling *new academic challenges*. These student leaders could serve as peer role models in the commons who, through mentoring and programming, in partnership with faculty directors, promote and encourage an environment of academic integrity and excellence. Some examples include: academic coaching, study strategies, peer study groups, time management, course registration, navigating campus resources, and connection to faculty.

## BUILD A FOUR-YEAR AFFINITY THROUGH PEER CONNECTION

Currently, upperclassmen have a minor -- if not nonexistent -- connection with the commons when the goal is to have them maintain a four-year affiliation with one of the four commons. We recommend reexamining the commons programming model to ensure cohesive and tangible development goals. Leveraging the goals of a Model University education, intentional

programming and activities tied to class standing and development needs can promote greater investment from students as they move off the quad. A common perception is that students don't understand the purpose of the commons beyond their first year -- and that largely seems to be influenced by a static programming model that is built around first year needs. By implementing a four-year programming model that builds off of the previous year and meets students where they are at in their development, the residential commons can provide opportunities for upper class students. For example, programming and activities such as professional development or transitioning to graduate school or entering the job market benefit juniors and seniors. Additionally, engaging upper-class students to return to their commons enhances a sustained commons affiliation.

Further, to create connections between students within the same commons, and to encourage sustained affiliation off the quad, we recommend implementing a mentoring program within the commons that can connect upperclassmen with first and second-year students. Pairing an upperclassman with an incoming student can help to build meaningful friendships and provide insights on campus involvement, academics, and social life through one-on-one meetings in the fall and spring semester. Our findings highlight the impact that delayed connection with peers, faculty, and staff have within the commons, creating lasting impressions for students seeking community and likely pushing students to find community elsewhere. A mentoring program could also support underrepresented populations by building community within the commons rather than immediately seeking affinity groups. Building mentoring programs is valuable for first-generation students and underrepresented populations who need support transitioning and persisting in college (Crisp & Cruz, 2009). Additionally, a mentoring program would provide opportunities to normalize returning to the commons social space on the quad for upper-class students.

## FIND CONNECTION THROUGH PARTNERSHIPS

One of the primary issues described by underrepresented students was feeling as if the majority population did not understand them and could not relate to their experience. We recommend that training on risk management, cultural diversity, cultural competency, and conflict resolution should be provided to all roles within the commons. For example, incorporating diversity, inclusion, and intersectionality training through campus partnerships to host programs and training for residents and staff would help support conversations amongst students, build community, and encourage a sense of belonging. Additionally, this would introduce residents to different offices, which they could leverage as resources for support and connection or engage with for co-curricular leadership opportunities. Allowing space for collaboration between the residential commons and student life departments supports a more holistic and ecological approach to creating community on campus. Allowing student life departments, where students are finding belonging, to play a role in supporting the commons identity could contribute to the concept of intersectionality. Just because a Model student finds belonging in a student organization, does not mean they have to abandon their commons identity.

## WORK HARD, PARTY SAFER

While not surprising, it should be alarming the connection between drinking and belonging for students at Model University. Given the finding of this report, we recommend a more robust evaluation of not only institutional policies and current programs in place. Whether that is relaunching CORE, the American College Health Assessment, or an internal tool, using data to gain information about the current campus climate around alcohol should include students, staff, and faculty. Our findings highlight a general lack of interest or a sense of apathy when it comes to recognizing the power, opportunity, and responsibility Model has to disrupt campus culture around drinking. We recommend garnering a more significant commitment from all aspects of student life in recognizing their role in mitigating the harms of substance use on campus.

To encourage evidence-based approaches, we recommend the use of the National Institute on Alcohol Abuse and Alcoholism (NIAAA) College Alcohol Intervention Matrix to evaluate individual and environmental strategies. Utilizing this tool - coupled with input from students, faculty, and staff - would allow Model to implement meaningful interventions grounded in public health frameworks, including harm-reduction. Some examples include late night programming, annual student organization community standard evaluations, organization re-registration that includes alcohol and other drug training, or peer-led orientation educational sessions. We believe a key component to the evaluation of policies includes review of the efficacy of current student conduct processes. Model should consider a balance of both punitive and educational sanctions tied to substance use infractions. This could include fines that are utilized to fund substance abuse prevention programming, mandated personalized feedback assessments, inactive sanctions that include probationary periods, or parent notifications.

Given the culture at Model, we recommend leveraging parents as a critical partner in addressing high-risk drinking behavior. *“Parental influence can remain strong for young adults who are transitioning to college environments, even among students with relatively high peer influence to drink alcohol”* (Cleveland et al., 2018, p.77). We recommend engaging parents throughout a student's time at Model. First, the university could send home physical copies of the Parent Handbook for Talking with College Students About Alcohol (Turrisi, 2010), which Model already has licensing rights to. Currently, this sits nested on a website and would benefit from a physical copy mailed home to parents and families after their student has committed to Model. Additionally, we recommend hosting a parent orientation session during move-in. Facilitated by wellness, counseling, and/or student conduct, this would provide parents with clear and direct communication from the institution that shares university expectations, resources, and corrects social norms -- emphasizing their partnership in curbing dangerous behavior. Lastly, we recommend communicating with parents during high-impact times and hallmark Model events tied to high-risk alcohol consumption (i.e., homecoming, spring break, Greek formal season). A letter from Model leadership, encouraging parents and families to check-in on their students, set expectations about low-risk drinking, and accessing resources and help if they need it, can prove to be a powerful tool.

## MIRROR ON THE QUAD INVESTMENTS OFF THE QUAD

As outlined in an internal strategic planning report for the future of residential life at Model, the second priority, after implementing the residential commons model with current infrastructure, is to renovate and develop the Main Street housing. With the findings of this study exposing the significant divide between the residential experience on versus off the quad, this step is critical to the sustainability of the commons model. In fact, if the intention of the commons was to create affiliation throughout all four years of a student's Model University experience, this is a necessary move to be done in tandem with strengthening commons identity.

We recommend two types of investment "*off the quad*" -- the first of which is financial. Physical space for residential commons programming and activities targeting upperclassmen is lacking. There is a need, for the success of the commons model, to commit investments in remodeling and enhancing the physical spaces off the quad. We believe this has only pushed students to abandon their commons identity, due to lack of connection and structured opportunities once they move off the quad. Working with Model University students, in collaboration with residential life and student life staff to reimagine infrastructure so it is collaborative, engaging, and useful to students, will help to improve the use of space and connection to the residential experience. The second investment we recommend is time and commitment from student life. The perceived separation between the commons and residential life has a dampening effect on the potential of the commons. If funding for infrastructure is not feasible, moving primary programming and activities "*off the quad*" could create a culture of moving across campus for residential commons events. Moving main events off the quad will help encourage the integration of first and second-year students with upper-level students.

## ADD CRITICAL ASSESSMENTS

With the substantial investment that Model University has made in implementing the commons, coupled with the findings of this study, we recommend a continued and sustainable assessment cycle to ensure and reevaluate whether the goals of the commons are being achieved. It appears to us that Model University has a rich culture of assessment which drives its data-informed interventions to ensure the success and satisfaction of their students. The commons are a rich opportunity to obtain data surrounding student experience and belonging on campus. We recommend the integration of the commons assessment into the first year and senior year surveys on an annual basis. Integrating consistent and annual assessments will allow students to provide feedback on whether the commons goals have been met. Additionally, staff and faculty can utilize this data to support opportunities for growth, integration of the commons beyond the residential experience and improve student outcomes.

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# APPENDIX

Table 10: Summary Characteristics of Interview Samples

	n	%
<b>Students</b>		
<b>Academic Year</b>		
First-Year	2	11%
Sophomore	4	22%
Junior	7	38%
Senior	5	27%
<b>Gender</b>		
Male	1	5%
Female	16	90%
Prefer not to say	1	5%
<b>Race/Ethnicity</b>		
White	12	65%
Hispanic/Latino	4	20%
Black/African American	2	10%
Multiracial	1	5%
<b>FY Residential Commons</b>		
Yes	17	95%
No	1	5%
<b>Qualify for No-Loan Initiative</b>		
Yes	5	27%
No	1	5%
Unsure	12	68%
<b>Campus Involvements</b>		
NCAA Student Athlete	2	11%
Culture Based Student Organization	4	22%
Fatih/Religious Based Organization	1	5%
ResLife Resident Assistant	1	5%
Greek Letter Organization	11	61%
Service Based Organization	1	5%
<b>Staff</b>		
<b>Functional Area</b>		
Institutional Leadership	2	15%
Residential Life	5	42%
Faculty	2	15%
Student Life & Leadership	4	28%

# INTERVIEW PROTOCOL

## STAFF INTERVIEW PROTOCOL

This interview is being conducted as part of a research study that is addressing how the residential commons system contributes to a student's Sense of belonging and academic engagement. Specifically, we are utilizing Strayhorn's (2012) definition of sense of belonging as "students' perceived social support on campus, a feeling or sensation of connectedness, the experience of mattering or feeling cared about, accepted, respected, valued by, and important to the group (e.g., campus community) or others on campus (e.g., faculty, peers)" (p. 3).

### Questions

#### ***Introductory questions/ icebreaker***

- What is your name?
- What is your title and responsibilities?
- How long have you worked here?
- What is your favorite Model tradition?

#### ***Sense of Belonging***

##### ***(perceived social support, connectedness, mattering, acceptance, respect, importance)***

- Considering Strayhorn's (2019) definition of sense of belonging - [Share definition with staff] - what ways does your role on campus contribute to creating a sense of belonging for students?
  - What are some of the illustrations (programs, conversations, experiences) where you see this come to life? How do you see your role with the college promoting sense of belonging?
- What are some challenges you notice students facing?
- How are those addressed within your role?
  - Within the Division of Student Affairs?
- What ways do students find community here? If students don't find community, what are some of the contributing causes you've seen?
- [For Campus Partners who don't work in Residential Life]
  - In what ways do you/your office support the residential commons?
  - [If applicable]
    - Were you here before the Residential Commons were implemented? Have you noticed any changes?
    - In what ways have you seen the residential commons system influence the student community?

#### ***Social Capital***

- Do you think all students have an equal chance to feel like they belong on campus? Why/Why not?
  - [if no] what are some barriers?
- How often do social activities require extra spending money?
- Do students avoid opportunities to engage because of the activity's expense?
- Do you feel like organizations plan activities with cost in mind?
- What do you think about the current activities of the different commons? What are the ways they may increase sense of belonging? Are there any ways you think they may decrease sense of belonging?

## STUDENT INTERVIEW PROTOCOL

### Informed Consent

**Purpose of the Study:** The focus group for which you are being asked to participate is a part of a research study that is focused on examining how the Residential Commons system at Model University contributes to a student's sense of belonging. The researchers are also interested in identifying how the Residential Commons system affects academic success and academic engagement, as well as how a student's sense of belonging in the Residential Commons system affects academic engagement.

**Your Participation:** Your participation in this study will consist of a zoom call interview with other students lasting approximately 45 minutes. You will be asked a series of questions about your experience with the Residential Commons. You are not required to answer the questions. You may pass on any question that makes you feel uncomfortable. Our discussion will be audiotaped to help me accurately capture your insights in your own words. The tape will only be heard by me and my two research partners for the purpose of this study. If you feel uncomfortable with being audiotaped, you may ask that it be turned off at any time. You have the right to withdraw from the study at any time. In the event you choose to withdraw from the study, all information you provide (including tapes) will be destroyed and omitted from the final paper.

**Benefits and Risks:** The benefit of your participation is to contribute information to the higher education community about your experience. There are no risks associated with participating in the study. Insights gathered by you and other participants will be used to write a research paper that will examine the effects of the Residential Commons system. Though direct quotes from you may be used in the paper, your name and other identifying information will be kept anonymous.

Thank you for agreeing to participate in this study, which will take place from September 2020 to April 2021.

### *Questions answered on pre-interview survey questionnaire.*

- Name (write in)
- Email Address (write in)
- Gender
  - Male
  - Female
  - Non-binary/ third gender
  - Prefer not to say
- Race
  - American Indian or Alaska Native
  - Asian
  - Black or African American
  - Hispanic or Latino
  - Native Hawaiian or Other Pacific Islander
  - White
  - Multiracial
  - Other
  - I prefer not to respond
- Do you qualify for Model's No Loan initiative?
  - Yes
  - No
  - Unsure
- Current Academic Year
  - First-Year
  - Sophomore
  - Junior
  - Senior
- Are you involved in any of the following (select all that apply):
  - Student Government
  - Residential Commons Council
  - Fraternities and Sororities
  - Model Student-Athlete



- Service-based organization
- Culture-based student organization
- Faith-based and Spiritual organization
- Did you live in a residential commons your first year at Model?
  - Yes
  - No
- (If yes) Which Residential Commons did you live in/ belong to?
  - RC1
  - RC2
  - RC3
  - RC4

### ***Introductory questions/ icebreaker***

- What is your favorite Model tradition?
- If I were a prospective student, where's the first place you would take me on my first campus tour?

### ***Sense of Belonging***

*(perceived social support, connectedness, mattering, acceptance, respect, importance)*

- What are some words that come to mind when you think about "sense of belonging" on campus? How would you define "sense of belonging"?
- In terms of the social aspect of college, has your experience so far matched what you thought it'd be like?
  - Where did you meet the people you socialize with the most?
  - Do you feel like you have found a community here? In what ways?
  - Are you involved with any on- or off-campus organizations? Which ones are most important to you? Why?
  - Do you have or have you had any official leadership positions on campus? What have those been?
- Who is most likely to notice when you're not doing well?
  - Who do you go to when you're having a problem you need to talk about?
- Is it easy to be yourself around others at Model?
  - Do you see others struggling to fit in? Do you feel like there's a place for everyone?
- How important is alcohol to Model's social scene?/ Is it difficult or easy for students to get plugged in, socially, without alcohol?
  - Do you feel like there are non-alcohol-involving alternatives?

### ***Social Capital***

- Do you feel like you've had an equal chance to belong?
- How often do social activities require extra spending money?
- Have you or a friend ever turned down an opportunity to socialize because of the activity's expense?
- Do you feel like organizations plan activities with cost in mind?

### ***Residential Commons***

- What are some words that come to mind when you think about your Residential Commons experience?
  - How would you describe the physical and social environments?
- Did the residential commons help you find community? If so, how?
- What activities do you see as contributing the most to building community?
  - Does everyone participate in the commons activities? Who does/ doesn't?
  - Did you/ do participate in the commons' programming? Why or why not?
- What sort of activities does your residential commons put on?
  - Can you describe a program that you went to that was hosted by a Residential Commons?

- Are any of them academically related? If so, do you think they encourage you to put more time or effort into your academic work (engagement)?
- What expectations did you have of the residential commons experience before you started at Model?
  - Has your experience met those expectations?
- What are some reasons why your peers may not feel a sense of belonging even with some of the activities that the residential commons provides?
  - What are some of the challenges you have encountered with building community within the residential commons?
  - What are some of your ideas that would help improve sense of belonging in the residential commons?