The Relationship Between Gender-Inclusive College Housing Environments and Students’ Sense of Belonging

Dissertation

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Abstract

This study examined the relationship between gender-inclusive campus residence hall environments and college students’ sense of belonging. The College Student Belongingness Scale (CSBS) was used for the purpose of this study, and administered via an online survey sent to students living in gender-inclusive (GI) campus housing units and those living in gender-exclusive (GE) campus housing units. Analysis of covariance (ANCOVA), controlling for race and GPA, was conducted to test for statistically significant differences in respondents’ sense of belonging, and chi-square analyses were conducted to test for statistically significant differences on the basis of sexual orientations and gender identities between the two groups. There was no statistically significant difference in sense of belonging between two groups, but the ANCOVA revealed statistically significant differences in sense of belonging among students from different racial groups (specifically Asian and White students) and among students who have different levels of academic achievement as measured by GPA. Additionally, while there were no statistically significant differences in sexual orientation between the groups, there was a statistically significant difference in gender identity with more males than females living in gender-inclusive campus housing units.
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Chapter 1: Introduction

Discourse about transgender, or trans, and gender non-conforming individuals in U.S. society has increased exponentially of late. A quick glimpse of recent news feeds reveals a narrative of evolving rights and visibility for the trans community, supported by both law and public attitude, while countered by those who wish to keep trans and gender non-conforming individuals invisible and marginalized legally and culturally. The press to maintain a false gender binary (an assumption that male and female are the only gender identities) is powerful and demands conformity to accepted cultural norms, to discriminatory laws that claim to protect “religious freedom,” and to prescribed ways that people are instructed to use gender-specified facilities like bathrooms. The fight for trans rights and inclusion is intensifying not only in the U.S., but also in other parts of the world (Baird, 2015).

College residential halls are locations that have been historically managed using a strict gender binary construction. Traditional housing assignment practices employed by colleges and universities involved housing students only within single-sex residence halls. As student demand for on-campus housing options grew and sexual mores in American society changed, colleges and universities began housing students in “co-ed” residence halls, where men and women were housed within the same building but where the living units themselves still remained segregated by gender (Centra, 1967; Duncan,
Today, a growing number of higher education institutions are instituting gender-inclusive residential housing options on their campuses (Campbell, 2012; Chave, 2014; Norton, 2011; Oliver & Magura, 2011). Anderson (2011) defines gender-inclusive housing as “a policy implemented by an institution of higher education that allows individuals to cohabitate with other individuals who have different gender identities than their own in an on-campus living environment” (p. 9). An article in the Washington Post reports on the decision made by officials at George Mason University to allow male and female students to live together in the same residence hall rooms on campus (Svitek, 2014). Svitek claims that George Mason’s policy change makes it one of the largest higher education institutions in Virginia, and one of nearly 150 institutions nationwide, that have established gender-inclusive housing options for students.

Estimating the actual number of campuses with gender-inclusive housing practices is a difficult task, as there are no true authoritative lists of such campuses, and most online sources of information are significantly incomplete or outdated (Anderson, 2011; Campbell, 2012). However, Willoughby, Larsen, and Carroll (2012) attempted a survey of campuses with the hope of determining the prevalence of gender-inclusive housing policies at U.S. institutions, how many institutions were formally or informally considering implementing gender-inclusive housing, and the policies and rationale that guide such decisions. Willoughby et al. reported that between the institutions that currently offer gender-inclusive housing or are currently formally considering it, almost one million students at U.S. universities may soon have the opportunity to live in a
gender-inclusive room. When combined with campuses that are informally discussing the possibility, virtually half of the largest universities in the country are poised to offer gender-inclusive housing options in the near future. Reports also suggest that these universities tend to be on the east or west coast, or in the Midwest; virtually no universities in the South have current or future plans for gender-inclusive housing, which Willoughby et al. claimed is likely reflective of the region’s political and religious conservatism. Clearly, the number of college campuses instituting gender-inclusive policies and practices is rising sharply, albeit unevenly, across the country.

Knowing how changes in gender composition within campus residential environments have influenced students is an important research priority. While there is a modest body of research addressing the impact of co-ed residential housing on college students, much of the literature is decades-old and therefore does not adequately reflect the wide variety of residential housing types or arrangements now offered to students nor the ways in which the cultural landscape may have changed since co-ed residence halls were initially introduced (Campbell, 2012; Harford, Wechsler, & Muthen, 2002; Willoughby & Carroll, 2009; Willoughby et al., 2009). However, Blimling’s (2015) most recent work on the impact of college residence halls on student learning and development is a particularly noteworthy contemporary contribution to the scholarly literature in this area. Furthermore, virtually no empirical research exists on the subject of gender-inclusive residential units in colleges and universities, much less whether such environments have an influence on students (Chave, 2014; Willoughby et al., 2012). With a growing list of institutions joining the gender-inclusive housing movement and increasing student demand for such housing options, it seems prudent that administrators
have some data on which to base future decisions about gender-inclusive housing options and to inform institutional responses to arguments for or against the implementation of gender-inclusive housing policies.

Additionally, the construct of student sense of belonging is an area of important interest for researchers and practitioners alike. While Tovar and Simon (2010) stated that research on student belonging in college environments is still in its infancy, there is a growing body of literature that supports the substantial impact sense of belonging has on students. Strayhorn (2012) defined belonging as a basic human need and motivation, sufficient to influence behavior. According to Strayhorn, while much is already known about some aspects of sense of belonging, comparatively little is known about the ways in which belonging is experienced differently among different students, as well as the role campus environments play on students’ sense of belonging. Walton and Cohen (2007) found that members of socially-stigmatized groups are more uncertain of the quality of their social bonds and as such, have a more unstable sense of social belonging, which they termed “belonging uncertainty” (p. 82). They asserted that feelings of belonging uncertainty among members of minority groups can develop even in the absence of overt prejudice, but can arise from threats to one’s social connectedness and have a disproportionately large impact on such individuals.

**Purpose**

This study examined the relationships between gender-inclusive college residential housing settings and students’ sense of belonging. College residence halls were instituted, in part, to maintain a sense of community on campuses and to foster important outcomes like sense of belonging that lead to student success (Blimling, 1989,
Prior research has clearly established a correlation between students’ residential experiences and positive outcomes such as grades, satisfaction, and persistence (Blimling, 1989, 2015; Eskow, 1971; Feldman & Newcomb, 1969; Lynch, 1971; Pascarella & Terenzini, 2005). Additional research has identified positive relationships between students’ sense of belonging and similar outcomes (Hausmann, Ye, Schofield, & Woods, 2009; Walton & Cohen, 2011). This study extends the body of research into this new realm of housing policies and practices, filling a gap in the literature with respect to whether students’ sense of belonging is related to their campus housing environments, specifically with regard to gender-inclusive residential settings. Additionally, this study examined the sexual orientations and gender identities/expressions of students living in gender-inclusive housing units to provide much-needed information about the demographic characteristics of students choosing to live in such environments.

**Research Questions**

This study was guided by three research questions:

1. Do students who live in gender-inclusive campus housing units experience a stronger sense of belonging than do students who live in gender-exclusive campus housing units?

2. Are students who live in gender-inclusive campus housing units more likely than those who live in gender-exclusive campus housing units to identify as lesbian, gay, or bisexual?
3. Are students who live in gender-inclusive campus housing units more likely than those who live in gender-exclusive campus housing units to identify as transgender or queer?

These questions are currently unanswered in existing literature, and must be examined to better understand the relationship between gender-inclusive housing environments and important student outcomes such as sense of belonging and other critical variables that impact student success.

**Definition of Terms**

The following terms were defined as described below for the purposes of this study.

**Gender-Inclusive Housing**

The term “gender-inclusive housing” refers to the practice of housing students in the same living unit (room, suite, or apartment) without regard for the student’s sex or gender identity. While “gender-neutral housing” has become recognized language within higher education when referring to this housing practice, the term itself is problematic in that it implies that the housing unit is a genderless space, when in fact, the occupants’ gender identity remains present and a significant component of the residential experience. Opening up the same housing units to students of varying gender identities does not make the space “gender-neutral,” or devoid of gender. It may have the opposite effect, that of heightening the awareness of gender and the varying ways in which it is constructed among the occupants within the space. Negrete (2008) referred to such housing units as “gender-free” (p. 36), while Bleiberg (2004) used the term “mixed-sex” (p. 7). Some institutions, such as Western Washington University, use the term “gender inclusive”
when referring to such housing units (Oliver & Magura, 2011, p. 38). Anderson (2011) emphasized the importance of using terminology that reinforces the inclusive intentions of such policies and avoids further stigmatizing residents who choose these living environments. As such, the term “gender-inclusive” in place of “gender-neutral” is used when referring to campus housing units that, by policy, are open to all students regardless of their gender identities, and “gender-exclusive” is used to describe housing units that are closed to (or exclude) those with certain gender identities from living there.

**Sex**

“Sex” refers to the biological characteristic of a person’s body as determined by one’s sexual organs and/or chromosomal make-up, and is typically categorized as male, female, or intersex (American Psychological Association, 2011; Campbell, 2012; Mollenkott, 2001; Wilchins, 2004; World Health Organization, n.d.). One’s biological sex can be redetermined through surgical or hormonal procedures, leading to a change in one’s sexual identity, called “transsex.” This is not to be confused with “intersex,” which is defined as a condition in which one’s sexual anatomy is not clearly male or female (Greenberg, 2012). Many intersex individuals, in fact, have genitalia or anatomies that resemble both male and female sexual organs. Some may choose to alter their anatomy to identify more closely with a particular sexual identity, but most people with intersex conditions identify as male or female, not transgender or transsexual (Creighton & Liao, 2004; Harper, 2007). In contrast, transsexual individuals are typically individuals who are born with typical male or female sexual organs “but feel as though they’ve been born into the ‘wrong body’….Thus, where all people who identify as transgender or
transsexual experience problems with their gender identity, only a small portion of intersex people experience these problems” (“What is intersex?,” n.d.).

**Gender, Gender Identity, and Gender Expression**

Gender denotes the socially constructed roles, behaviors, activities, and attributes that a given society considers appropriate for a person’s biological sex (Butler, 1999; Campbell, 2012; Wilchins, 2004). Wilchins (2004) and West and Zimmerman (1987) asserted that gender is more of a verb than a noun; it is something that one does as opposed to something one is. Behavior that conforms to such societal expectations is considered “gender-normative,” while behavior that is considered incompatible with these expectations is regarded as “gender non-conformative” (American Psychological Association, 2011).

Gender identity refers to a psychological sense of oneself as male, female, a combination of both, or rejection of both (Campbell, 2012). Gender identity and gender expression are often used interchangeably, but they are different concepts. Gender identity refers to the inner sense a person has of being male/masculine or female/feminine, while gender expression refers to the ways in which one attempts to communicate gender within a cultural setting, such as through clothing, behavior, or grooming, and may or may not reflect one’s gender identity (American Psychological Association, 2011; Negrete, 2008; Wilchins, 2004).

**Transgender, Gender Variant, and Genderqueer**

Gender identity has historically been regarded as a binary between being masculine or feminine, but a more contemporary understanding recognizes that one’s gender identity is on a continuum between the notions of masculine and feminine
“Transgender” typically refers to those for whom their biological sex and their gender identity are not congruent, often leading such individuals to assume characteristics and manners that conflict with socially-prescribed ways of expressing gender assigned to them at birth (American Psychological Association, 2011). “Trans” or “trans*” is sometimes used as a more encompassing term that includes transgender and transsex individuals; “transgender” is used in this study because the research focus is on gender identity, not sexual identity. “Gender variant” and “genderqueer” are more recent terms that refer to individuals whose gender identity and expression remain more fluid and are less conforming to the assumed gender binary of male or female (Beemyn, 2003; Negrete, 2008; Rankin & Beemyn, 2012).

**Sexual Orientation**

Sexual orientation denotes the gender identities to which one is sexually and romantically attracted (American Psychological Association, 2011; Campbell, 2012). This term is sometimes used interchangeably with the term “sexual identity.” Typical categories used in this construct reflect an assumed binary and include homosexuality (attraction to members of the same sex), heterosexuality (attraction to members of the “other” sex), and bisexuality (attraction to members of “both” sexes), but additional categories growing in acceptance and usage include pansexuality (attraction to all gender and sexual identities), and asexuality (no sexual attraction to anyone) (American Psychological Association, 2011; Elizabeth, 2013; Prause & Graham, 2007).

One’s sexual orientation, gender identity, and/or gender expression are interrelated identities for some individuals, but not for all. An individual who identifies as a gay male may express his gender with masculine or feminine qualities. Additionally,
a female-to-male transgender person who is attracted to females might not consider his sexual orientation to be gay, lesbian, or homosexual since he identifies as a male and as such, may consider his attraction to females to be heterosexual in nature.

**LGBTQ**

LGBTQ is a widely-used acronym for Lesbian, Gay, Bisexual, Transgender, and Queer. There are a number of additional sexual and gender identities that are often included with this acronym, such as Questioning, Intersex, Pansexual, and Asexual, and the first letters of these identities will appear in a variety of configurations and orders (Campbell, 2012). However, for the purposes of this study, a simplified version of LGBTQ is used to refer to all varying types of sexual orientations and gender identities that are not heterosexual/straight and/or cisgender.

**Homophobia, Heterosexism, and Homonegativity**

Pharr (1997) asserted that homophobia is “the irrational fear and hatred of those who love and sexually desire those of the same sex” (p. 1). Heterosexism, also frequently referred to as heteronormativity, is defined as “the individual person, group, or institutional norms and behaviors that result from the assumption that all people are heterosexual” (Campbell, 2012, p. 3). Pharr (1997) further characterized heterosexism as the catalyst for homophobia through the systemic display of power and privilege as the norm within societal institutions. Homonegativity is somewhat similar to homophobia, but is differentiated by the presence of negative beliefs and attitudes toward homosexuality, rather than a fear of it (Campbell, 2012). Homonegativity may lead one to act violently toward someone who is gay, while homophobia may lead one to simply avoid the same person.
Housing Unit

In this study, the term “housing unit” refers to on-campus residential rooms, suites, apartments, or other individual spaces into which students are assigned to live with other students. The term does not refer to an entire residential building itself, as there may be both gender-inclusive and gender-exclusive housing units within the same building. Additionally, this study is only examining the housing experiences of students who live in institutionally-owned and operated facilities.

Significance of the Study

Significance for Practice

This study has practical significance for a number of important constituencies. One key group for whom this study carries particular importance is residence life professionals. Gender-inclusive housing practices were largely instituted in support of LGBTQ students, and yet little is actually known about the actual characteristics of students who choose this housing option (Anderson, 2011; Beemyn, 2003; Bleiberg, 2004; Campbell, 2012; Chave, 2014; Negrete, 2008; Oliver & Magura, 2011). These results provide the first data of their kind that can assist such practitioners in establishing gender-inclusive housing options and in shaping policies and practices that lead to greater academic success and student satisfaction for those who actually choose to live in such environments.

Another constituency that may benefit from this study is students who are interested in choosing gender-inclusive living environments on their campuses. These results provide students with information about the outcomes of other students who live in gender-inclusive housing units. Students may use such results to determine if a
gender-inclusive housing experience is appropriate for them and likely to support their own goal attainment in college.

A third constituency that may find value in this study is senior administrators and trustees at institutions who are considering expanding their housing options to include gender-inclusive opportunities. Kezar (2008) asserted that it is more important than ever for campus leaders to move diversity agendas forward at their institutions, and yet the politics of diversity can be complicated for senior campus leaders, namely college presidents. Change efforts involving issues of diversity usually require well-conceived strategies if they are to be successful. Senior administrators may consider results from this study to inform their decision-making practices and strategy formulation regarding gender-inclusive housing practices on their campuses.

**Significance for Research**

This is the first known empirical study of the relationship between gender-inclusive housing environments and student outcomes. This research extends the literature on college students’ sense of belonging by specifically examining physical residential environments and their relation to sense of belonging, and provides important demographic information about the characteristics of students who live in gender-inclusive housing units. Additionally, the College Students Belongingness Scale (CSBS) was developed for the purposes of this study, and can be used in future research on college students’ sense of belonging in a multitude of contexts, not simply within residential environments. Results from this study can inform future research on sense of belonging among college students, as well as outcomes experienced by students living in gender-inclusive campus housing units.
Significance for Policy

This study may have utility for a number of important stakeholders in housing assignment policies and practices. One key group is university administrators who are responsible for setting housing assignment policies. Because there is no known existing empirical research on student outcomes associated with gender-inclusive housing environments, administrators have very little data to use when considering a change in assignment policies and practices. This study will provide important information that could inform policymaking at the institutional level.

Others who might benefit from this study are students who wish to advocate for a change in their institution’s housing assignment policies and practices. Student activists currently have little objective data they can use to help build an argument as to why gender-inclusive housing environments could be beneficial to their college experience. This study may provide such data to students and administrators who are responsible for enacting changes in gender-related housing assignment policies and practices.

Finally, this study may benefit institutional trustees who are charged with setting key institution-wide policies and ensuring that the institution meets the needs of today’s students. There are important considerations trustees should weigh when making policy changes, including constituent impact, financial impact, institutional reputation, and public relations. When considering important policy changes, trustees can benefit greatly from data-based research findings to support or challenge a requested change in policy, and this study may provide such crucial data.
Delimitations

One delimitation of this study is the collection of self-reported data from student participants through a questionnaire. Self-reported data can produce somewhat unreliable information about a participant’s true experience or reality, as the participant may be hesitant to share his or her true opinion with the researcher or may not have a sufficient level of insight into his or her experience to adequately describe or portray it through the questionnaire instrument. This could have contributed to higher degrees of survey measurement error or to the low overall response rate, particularly among those living in gender-inclusive campus housing units, thereby limiting the strength of the study’s findings.

This study may also be limited by having only one participant campus. Each institution has its own unique policies and practices pertaining to gender-inclusive housing assignments, and a campus climate that is somewhat distinctive to each campus. There may be physical, operational, environmental, or other differences between this institution and other institutions that limit the generalizability of the findings of this study, especially in light of organizational theory literature in higher education that shows how such factors influence institutions and individuals’ experiences within them (Strange, 2003; Strange & Banning, 2001).

Despite these potential delimitations, findings of this study may be quite useful to those who are considering or are advocating for changes in housing assignment policies and practices. Controlling for known independent variables among student participants will also allow for closer examination of the independent variables of true interest in this study: housing assignment type, sexual orientation, and gender identity.
Organization

This dissertation is organized into five chapters. Chapter One provides an introduction to the research topic, describes the research questions being examined in the study, briefly overviews the methodology that will be used, and argues for the significance of the study. Chapter Two provides a review of literature that is pertinent to the concepts and approach used in this study. Chapter Three describes the methodology used in this research, and includes an overview of sampling techniques and data collection and analysis procedures. Chapter Four presents the results of the study. Finally, Chapter Five discusses implications of the results for policy, practice, and future research.
Chapter 2: Literature Review

The purpose of this study was to examine the relationship between gender-inclusive residential environments and students’ sense of belonging. Three research questions guided this study:

1. Do students who live in gender-inclusive campus housing units experience a stronger sense of belonging than do students who live in gender-exclusive campus housing units?

2. Are students who live in gender-inclusive campus housing units more likely than those who live in gender-exclusive campus housing units to identify as lesbian, gay, or bisexual?

3. Are students who live in gender-inclusive campus housing units more likely than those who live in gender-exclusive campus housing units to identify as transgender or queer?

Gender-inclusive housing is an option some campuses have been providing for many years, and is a rapidly-growing trend across campuses in the U.S. (Norton, 2011; Norton & Chang, 2006; Willoughby et al., 2012). Unfortunately, there appears to have been virtually no published empirical research conducted on this practice to date (Chave, 2014). Such a significant change in residence hall assignment practices warrants research
to determine its benefits or detriments to positive student outcomes, and to develop best practices for those campuses that choose to implement such policies. Despite the absence of studies specifically devoted to gender-inclusive housing practices, there are other important bodies of literature and concepts that are related to this topic that will be reviewed in this chapter: the influence of campus environments, the history of gendered spaces in campus housing, the impact of residential experiences on student outcomes, research on sense of belonging, and the constructs of sex and gender.

**Influence of Campus Environments**

Research has demonstrated that campus environments have a significant impact on college student outcomes. The conceptual relationship between campus environments and student outcomes has its roots in the underlying principles of human ecology, which form the basis for an understanding of campus ecology (Renn & Patton, 2010; Renn & Reason, 2012). First introduced by Bronfenbrenner (1979), the principles of human ecology assert that individuals encounter stimuli from their environments that reinforce specific traits and behaviors or that require adaptation, that the environment may be changed by such individuals, and that outcomes such as learning and development are the products of these interactions between individuals and their environments (Renn & Reason, 2012). Bronfenbrenner’s model of human ecology involves interactions among process, person, context, and time, and provides a framework for understanding the components involved in the development of students within a collegiate setting. This model is particularly informative in explaining why there can be stark differences in outcomes between two students at the same institution who share many similar characteristics (Renn & Patton, 2010).
Campus ecology, derived from the principles of human and developmental ecology, is a lens that applies this model to institutions of higher education and can serve as a framework for understanding, designing, and assessing educational environments that support learning and development (Renn & Patton, 2010). Astin’s (1991) Input-Environment-Outcome Model (I-E-O), rooted in a campus ecology paradigm, provides further insights into understanding the dynamic interaction between students and their environments. Astin’s model is typically applied to the realm of student involvement, but can also be applied to consider the impact that environments, like residence halls, have on student outcomes. According to Astin, students approach their campus contexts and opportunities with different characteristics, interests, previous experiences, and degrees of commitment (their “inputs”). They engage with, and are affected by, their campus environments in different ways and at varying levels, leading to learning and development outcomes that are unique and directly related to the interaction between their inputs and environments. When applied to residential environments, students come to their residence hall communities with their attributes, expectations, and commitments; they then influence, and are influenced by, their physical and social residential environments can lead to learning and development outcomes that are positive or negative (or both).

Strange and Banning (2001), using the campus ecology perspective, encouraged campus designs that attended to four important goals: inclusion, safety, involvement, and community building. These four goals relate to both perceptions and interactions among college students. Strange and Banning also identified four components of campus environments that serve these goals: physical (natural and human-built), human aggregate
(person-environment interactions), organizational (decision-making structures), and constructed (environmental press, culture, and climate). Renn and Reason (2012) write that Strange and Banning’s four goals and four components provide a framework by which campus administrators at different institutional types can effect change that promotes and increases success for students with varying backgrounds and characteristics. For purposes of this study, the physical, human aggregate, and constructed components of campus environments are most salient.

**Physical Component of Campus Environments**

According to Strange and Banning (2001), campus physical environments serve both functional and symbolic ends. They define spaces for specific purposes (activities, functions, events, etc.) and offer possibilities for human response, while also making some responses more probable than others. Strange and Banning state, “The functionality of the campus physical environment not only affords and constrains certain activities, but it also communicates important nonverbal, symbolic messages.” (2001, p. 17).

Strange and Banning (2001) also assert that actual physical environmental features can encourage or discourage learning and development. For example, a building’s design can encourage or discourage students from entering the building itself, while seating arrangements in interior lounge spaces can inhibit or foster social interaction. Physical features can also communicate messages of support or nonsupport by signaling a sense of belonging, welcome, safety, role, worth, and/or value (Banning & Bartels, 1993). Wilcox and Holahan (1978) found that students who live in low-rise residential facilities had stronger relationship commitments toward their fellow residents.
than did students who live in high-rise residential facilities. Strange and Banning additionally report that living units comprised of a higher percentage of single rooms were more likely to be characterized by competition and less oriented toward supportive achievement, independence, intellectuality, or relationships. Kuh et al. (1991) further emphasize the role of residential designs in fostering social engagement and connectedness by highlighting the importance of intentional spaces (e.g. lounges with comfortable furniture, wide hallways, side stairwells, benches, alcoves, etc.) that encourage spontaneous, informal interactions among students.

**Human Aggregate Component of Campus Environments**

Strange and Banning (2001) write about the nature of person-environment congruence, meaning the degree of fit between persons and their environments. According to these authors, congruence occurs when one’s characteristics (i.e. personality, demographics, values, etc.) are the same or nearly the same as the dominant type within the environment, while dissimilarity with the dominant characteristics leads to incongruence and discomfort. The degree of congruence can predict a student’s attraction to and satisfaction within a particular environment. Additionally, the behaviors, values, and characteristics that initially drew the individual to the environment are likely to be reinforced and supported once the individual is in the environment itself, thereby reinforcing person-environment congruence. Those who do not find congruence within the environment are unlikely to remain within it.

Blimling (2015) has written extensively on the relationship between residence hall environments and student outcomes, and he highlights the important role that both space
and programming play on fostering social interaction and relationships between students. He states:

Students who enter residence halls as strangers begin to form social groups or cliques shortly after they arrive. Frequency of contact – such as living in adjoining rooms, using the same restroom facility, playing on the same residence hall intramural team, or taking the same classes – or having some prior association such as hometown, nationality, or ethnic or racial identity often becomes the catalyst for these cliques to form. As these social groups emerge in residence halls and students share more common experiences, the social groups gain emotional power. Members are rewarded through inclusion, positive laughter, emotional connections, feelings of closeness, and trust; members are punished through ridicule, embarrassment, humiliation, shame, and ostracism. (pp. 73–74)

According to Blimling (2015), residence hall environments can impact person-environment congruence through spacial design as well as through the social interaction between those who occupy those spaces. He also emphasizes the ability of special assignment housing programs, such as living and learning centers (where students who are studying similar content are housed in proximity together), honors housing, and special interest housing (such as community service or gender-inclusive groupings) to increase the level of engagement between such residents around shared interests, thereby strengthening their assimilation and sense of group identification. Blimling posits that themed units like LGBT and gender-inclusive housing provide students with a safe environment where they are less likely to experience judgment or discrimination from others, thereby leading to higher levels of satisfaction and stronger relationships with others in the program. Additionally, Blimling reports that the relationships between roommates can foster an increased sense of belonging at the institution, and can even positively impact academic performance.
Schussler and Fierros (2008) examined the influence of four models of residential learning communities on first-year students’ perceptions of their academic environment, relationships with others at the institution, and sense of belonging. They found that students in the high-impact model, where students lived and attended two classes together, reported a statistically significantly higher degree of sense of belonging, among other positive outcomes. However, they did not find a statistically significant difference between the living community models related to students’ social relationships or their relationships with their faculty. These researchers concluded that while the residence life experience, in general, facilitated opportunities for students to develop important social and academic bonds with their peers, leading to a sense of belonging, the degree of this impact was different among the four learning community models. The most effective model for strengthening the integration of students’ social and academic campus experience, as well as their sense of belonging, involved combining close residential living with more than one common academic course.

Blimling (2015) offers eight propositions, drawn from extensive studies by different researchers over many decades, that foster the development of a sense of community or belonging in residence halls:

1. The closer students live to each other in a residence hall, the more likely it is that they will meet and become friends.
2. The greater the homogeneity of students in the living unit, the more likely they are to develop friendship and community.
3. The more satisfied students are with the quality of the residence hall living environment, the more likely they are to commit themselves to the community.
4. The more clearly defined the social and physical boundaries are within a living unit, the more likely students are to develop community.
5. A living unit organized around a special lifestyle topic or academic program is more likely to develop community than a living unit to which students are randomly assigned.
6. The more time students spend together, the greater the changes are that they will develop friendships and a sense of community.
7. The degree to which students in a living unit participate in community activities contributes to friendships and a sense of community within that living unit.
8. Community and peer acceptance significantly influences the likelihood of students remaining in college, reporting high levels of college satisfaction, and reducing students’ levels of emotional and physical stress. (pp. 225-226)

These propositions have direct relevancy to gender-inclusive residence hall environments, in which students are typically housed in close proximity within a residential building, may exhibit greater homogeneity of values and attributes, may develop formal or information boundaries about who is welcomed into their community, are organized around a special topic, and may exhibit a higher degree of community and peer acceptance among each other.

**Constructed Component of Campus Environments**

Constructed components of campus environments include aspects of environmental press (the emphasis placed on institutional values like inclusion and academic excellence) and matters of campus climate (Strange & Banning, 2001). Renn and Patton (2010) define campus climate as “the overall ethos or atmosphere of a college campus mediated by the extent individuals feel a sense of safety, belonging, engagement within the environment, and value as members of a community” (p. 248). It is, according to these authors, primarily a “felt” concept, and as such, is a deeply personal sense.

Renn and Reason (2012) describe four dimensions of campus climate:

1. The institution’s historical legacy of inclusion or exclusion of different racial and ethnic groups.
2. The institution’s structural diversity (numerical representation of identity groups).
3. The institution’s psychological climate of perceptions and attitudes between and among groups.
4. The behavioral climate of campus intergroup relations. (p. 100)
Renn and Reason report a host of research studies on the effects of chilly campus climates on various student populations, including women or men in certain fields of study, racial and ethnic minorities, sexual minorities, and those who operate outside of expected gender norms. According to these researchers, students who perceive that their campus is discriminatory report diminished academic and social integration, including a lower sense of belonging. Additionally, they provide a summary of studies indicating that hostile campus climates negatively affect student outcomes, including sense of belonging, particularly for students of color. Furthermore, Moos and Gerst (1972) assert that the immediate living environment, as opposed to the general college environment, may have a more direct impact on student outcomes such as satisfaction with college life, intellectual and academic productivity, affect, and mental health.

**History of Gendered Spaces in Campus Residence Halls**

Since the advent of on-campus residential living, residence halls have been gendered spaces. Whether exclusively male in the early days of higher education when females were not able to attend, to segregated genders in later years, to integrated genders in more recent times, residential living programs have relied on gender as a key criterion in determining which students live in which facilities.

**Early Beginnings**

On-campus residential living traces its roots to the medieval English higher education system, which placed enormous value on the centrality of residential living to the educational mission of the university, providing an environment where faculty and students could experience a common life together that was both intellectual and moral (Frederiksen, 1993; Schroeder & Mable, 1994). The British system of residential
colleges demonstrated a strong commitment to the education and development of the whole student and to studying within a community of learners. Faculty at Oxford and Cambridge lived in the “dormitories” with their students and formed friendships with them through activities such as tutoring and dining.

Given the strong representation of former Oxford and Cambridge students among America’s founders, it is not surprising that early colonial colleges assumed much of the culture and character of the English system, including the tradition of having residential units serve as centers of both informal and formal education. These institutions were organized initially as residential colleges, where faculty lived, dined, supervised, and taught students in the residential units themselves. Eventually, the faculty grew tired of these responsibilities and a number of non-faculty individuals (often “housemothers”) were appointed to fulfill such non-instructional roles and responsibilities in the residential facilities as disciplinarians, parental figures, and social-grace educators (Frederiksen, 1993).

**Single-Sex Housing**

As American colleges and universities became increasingly co-educational through the late 1800s and early 1900s, residential facilities were required to house increasing numbers of female students. Given the cultural mores at the time, separate residential facilities were built for them, often as far away from the men as possible (Grimm, 1993). After World War II, student housing demand increased sharply in concert with a dramatic enrollment surge that included returning veterans, women, and minorities. Fueled by passage of the G. I. Bill, approximately 11 million veterans sought enrollment in higher education with these newly-available funds. Additionally, Congress
passed Title IV of the Housing Act of 1950, thereby providing massive amounts of federal money for institutions to embark on large-scale residential projects to accommodate these enrollment increases. This resulted in buildings that were constructed to house and feed as many students as possible, as cheaply as possible, giving rise to the dormitory-style housing that became the hallmark of on-campus living for many years (Frederiksen, 1993; Lucas, 1994; Schroeder & Mable, 1994). This also led to growth in administrative structures, typically separated into two divisions, one for men and one for women, and usually overseen by separate deans. These organizational structures led to separate facilities, rules, and policies for men and women on the same campus, but were usually characterized by rules for women that were much more stringent than they were for men as a means to protect their “virtue” (Frederiksen, 1993).

**Coed Housing**

As the U.S. experienced significant cultural changes in the 1960s, so did American colleges and universities. The civil rights movement of the mid-1900s shook students from a sense of indifference to social issues pervasive in the 1950s, and they were determined to make their voices heard. Multiple social causes (racism, sexism, classism, war, free speech, and more) became intertwined rallying cries for change in society, particularly within higher education institutions (Lucas, 1994). According to Lucas, the relationship between students and the institutions they attended became contentious, with many students rebelling against what they believed was institutional support for an unjust and irremediably corrupt Establishment.

In line with this growing commitment to egalitarianism in America, new federal regulations removed barriers to women, minorities, and individuals with a disability in
many areas of society, including higher education. By mid-century, women began to outnumber men at U.S. colleges and universities. Title IX of the Education Amendments of 1972 became federal law and required institutions that receive federal funds to provide equal treatment for men and women on their campuses in both facilities and policies. Student protests against the degree of control that institutions exercised over them were frequent and intense, and led to an exodus to off-campus living options at campuses where that was permitted (Cardozier, 1987; Willoughby & Carroll, 2009). Institutions responded by expanding co-educational (“coed”) residence halls options, implementing visitation hours between men and women in the building, eliminating curfews (usually only in place for women) and dress codes, and allowing drinking of alcohol on campus for students who were of legal age. Additionally, many campuses replaced housemothers during this period with professional residence life educators with advanced degrees, thereby fostering the professionalization of the work of student affairs and beginning the abandonment of the role of in loco parentis (Cardozier, 1987; Grimm, 1993; Schroeder & Mable, 1994).

Campus unrest began to recede as the 1970s progressed, but the cultural changes fostered by the 1960s did not disappear. A sexual revolution during these decades altered societal notions about appropriate roles for women, and colleges and universities saw women enrolling in increasing numbers and choosing fields of study that were historically male-dominated. Between 1970-1975, the number of female students increased 40%, while only increasing 21% for men, and the proportion of women enrolling as first-year students at college and universities between 1961 and 1991 rose from 44% to 53% (Dey, Astin, & Korn, 1991; Educational Facilities Laboratories, 1977).
In an effort to support the emergence and development of scholarship involving women, 150 new women’s studies programs were established between 1975-1980 at institutions across the country, and this growth rate was repeated again between 1975-1980 (Lucas, 1994).

Despite these gains in numbers, gender inequity was still an ever-present reality. Many women chose to live on-campus because of unfair off-campus housing practices, such as requiring a male’s signature on a lease or a security deposit that was double the amount that men paid, or for personal safety concerns (Educational Facilities Laboratories, 1977). Colleges and universities were still struggling with their own biased and outdated policies as well (Duncan, 1972). According to Blimling (1993b), this increase in female residents presented logistical issues for colleges that were only providing single-sex residence halls. Some campuses provided married student housing, where a student’s children were allowed to live in the unit, but only if the student was legally married; single mothers were not given access to this housing option on many campuses, and since children were not allowed to live with them in traditional residence halls, single mothers were usually forced to move off-campus to endure the kinds of discriminatory attitudes described above (Educational Facilities Laboratories, 1977).

Blimling (1993b) reported that after the liberal 1960s, student attitudes and beliefs became much more conservative in the 1980s, followed again by a general liberalization in the 1990s. Dey, Astin, and Korn (1991) also described an overall liberalization of attitudes in the 80s and 90s about social and political issues pertaining to women, minorities, and LGBTQ persons. Commensurate with this change, student expectations for residence hall environments that reflect their growing acceptance of differences, as
well as conflict among those who continued to hold discriminatory attitudes in light of growing diversity on campuses, added pressure for institutions to respond with facility and policy changes that support changing student demographics and demands.

Research on coed housing environments indicated that their impact on students was largely positive. Moos and Gerst (1972) conducted an early study on behalf of the National Institute of Mental Health and found that “residents of coed houses perceive their environments as stressing personal concern, involvement, mutual support and a high degree of both independence and achievement” (p. 15). Similarly, Corbett and Sommer (1972) stated that students living in coed environments reported a friendlier atmosphere, greater ease in developing social relationships, a stronger feeling of belonging, a greater sense of autonomy, and fewer cliques.

According to Willoughby and Carroll (2009), most large universities no longer offer single-sex housing facilities, and those that still do typically use smaller buildings or do so in support of designated themed housing experiences. Willoughby and Carroll found in their survey of current housing practices that 92.9% of available residential spaces at large universities were in coed buildings, 79.2% at mid-sized institutions, and 87.2% at small institutions. These researchers also found that those residing in single-sex buildings were typically assigned there by the housing office and had not chosen to live there, leading to high dissatisfaction rates among such occupants.

**Gender-Inclusive Housing**

Gender-inclusive housing practices began as an attempt by some institutions to provide an appropriate and safe housing option for traditionally-aged transgender students, who are often in the beginning stages of transitioning to their internal gender
identity once they enter the college setting and could ideally benefit from living in an accepting and supportive environment (Anderson, 2011; Beemyn, 2003; Bleiberg, 2004; Campbell, 2012; Chave, 2014; Robison, 1998; Willoughby et al., 2012). While many campuses instituted gender-inclusive housing practices in response to transgender student needs, many have since broadened their policies to allow students of any gender identity or sexual orientation to request assignment into such housing units.

Many writings or commentary related to the topic of gender-inclusive housing seem to assume that those choosing to live in a gender-inclusive setting identify as lesbian, gay, bisexual, transgendered, or queer (LGBTQ), despite there being no known examination of the sexual orientation or gender identities of such students living in gender-inclusive housing units (Blimling, 2015; Chave, 2014; Oliver & Magura, 2011). Yet as some campuses have found, many students choosing gender-inclusive housing options do not identify as a member of the LGBTQ community, but simply prefer to live with specific friends or family without regard for their biological sex or gender identity (Chave, 2014; Oliver & Magura, 2011). Other researchers have found that transgender or queer students prefer living in apartments or single rooms over other housing unit types, including gender-inclusive campus housing units (Krum, Davis, & Galupo, 2013).

Movement toward gender-inclusive housing has faced opposition. Much of the objections to date have been based on personal or religious moral grounds, or out of fear that gender-inclusive housing will lead to higher levels of promiscuity, higher problematic drinking behaviors, lower levels of academic performance, and higher attrition rates (Campbell, 2012; Holley, 2012; Oliver & Magura, 2011; Willoughby & Carroll, 2009). Christine Sheets, executive director of residential housing at Ohio
University, where gender-inclusive housing options were introduced in 2011, stated, "The concerns raised were often based on misperceptions, such as having all housing gender neutral or that gender-neutral housing was encouraging dating couples to live together" (Oliver & Magura, 2011, p. 39). Additionally, Karen Walker, assistant director of university residences and former chair of the Gender Inclusive Housing Committee at Western Washington University in Bellingham, remarked that their institution faced some concerns about seeming to create a "shack up" community by offering opportunity for varying genders to live together (Oliver & Magura, 2011). Others have questioned whether gender-inclusive housing is necessary given the housing options students have off-campus and the burden it places on housing administrators to successfully implement such policies (Hardt, 2009). Presently, no evidence exists to support or invalidate these and other objections or concerns.

**Influence of On-Campus Residential Living**

Prior research suggests several major conclusions about the effects that on-campus living has on students (Astin, 1984, 1993; Blimling, 1989, 1993b, 2015; Moos & Gerst, 1972; Pascarella & Terenzini, 1991, 2005). Pascarella and Terenzini (1991) concluded in their earlier anthology that on-campus living had the greatest positive impact on students than any other determinant on such outcomes as increases in cultural and intellectual values; liberalization of social, political, and religious values and attitudes; development of positive self-concepts; tolerance and empathy toward others; use of principled reasoning; and higher levels of college persistence and graduation. In their later anthology, Pascarella and Terenzini (2005) found that on-campus living played a smaller role in changes in students’ psychosocial and attitudinal values or gains in self-
esteem, but continued to prominently impact students’ racial/ethnic attitudes and appreciation of diversity, rate of persistence and degree completion, involvement in co-curricular activities, level of engagement with peers and faculty, level of satisfaction with campus social climate and college experience, and personal growth and development.

Another set of studies reviewed by Pascarella and Terenzini (2005) focused on specialized on-campus residential environments such as living-learning communities (LLCs), and suggest that students who reside in living-learning settings are more likely to persist and experience greater gains in a number of dimensions listed above. Indeed, some researchers found that students who live in thematic learning environments that were intentionally designed to foster student engagement were more likely to hold positive attitudes toward diverse others (Lopez Turley & Wodtke, 2010; Nesdale & Todd, 2000; Pike, 2002), or experience a stronger sense of belonging on their campus (Blimling, 2015; Schussler & Fierros, 2008). Additionally, in her study of women in LLCs for STEM (Science, Technology, Engineering, and Math) majors, Johnson (2012) found that academically and socially supportive residence hall climates were the strongest contributors to students’ sense of belonging. LLCs can reinforce students’ career choices, decrease their sense of isolation, and provide a readily-accessible support network.

**Critiques of Prior Residential Impact Studies**

While useful, there are limits to the existing literature about the impact of on-campus residential living. Lopez Turley and Wodtke (2010) and Blimling (1989) noted that much of the prior empirical research on the impact of residential environments on students was disproportionally conducted at large public research-focused institutions,
which limits the research to specific institutional types and ignores the possible role that institutional type may play with regard to residential impact. Additionally, most studies were conducted at single institutions rather than using data from representative multi-institutional settings, and therefore such studies were limited to the examination of the effects within the same institutions rather than the effects between different institutions.

As Lopez Turley and Wodtke noted, accounting for the effect of institutional type on residential student outcomes is important because institutional characteristics have been shown to be associated with levels of student involvement and engagement (Porter, 2006), which has been shown to be related to academic persistence and achievement (Astin, 1984, 1993; Pascarella & Terenzini, 1991, 2005; Tinto, 1987). Furthermore, most prior studies looked at the general effects of residential settings, thereby excluding an examination of the effects residential living may have on different types of students.

In their study, Lopez Turley and Wodtke (2010) included a variety of institutional types and controlled for student characteristics, and found that for most students at most institutions, the type of residential setting did not seem to play a significant effect on the academic performance of first-year students as a whole as measured by GPA. They did, however, find that Black students attending varying institutional types who lived on campus in their first year had a statistically significantly higher GPA than did similar students at the same institution who live off-campus with family members. Additionally, first-year students as a whole attending a liberal arts institution (as compared to a large public research-intensive institution) who live on campus had significantly higher GPAs than did students at the same institution who live off-campus with family. Interestingly, the effects were significantly different only for those students who lived on-campus.
compared to those who lived off-campus with family; the effects were not significant when compared to those who lived off-campus without family.

Similarly, in his meta-analysis of the impact of residential living on students’ academic performance, Blimling (1989) found that while most studies to date concluded that residence hall environments had a positive effect on students’ academic performance, most did not control for prior academic performance. When limiting his analysis to those studies that utilized such controls, there appeared to be no statistically significant difference in academic performance between those students who lived on campus and those who lived at home. While there are valid critiques of studies that examined the impact of residence hall settings on academic performance, the conclusion that on-campus living has a net positive effect on other desirable outcomes, such as greater appreciation of diversity, enhanced student engagement, and higher levels of educational attainment and persistence, appears to have wide consensus within the field.

**Sense of Belonging**

Tovar and Simon (2010) stated that sense of belonging has its theoretical roots in the work of Bollen and Hoyle (1990), who studied perceived cohesion, of which sense of belonging was a dimension. Baumeister and Leary (1995) established that “belongingness,” or a sense of belonging, is a fundamental human need and as such, produces readily-observable effects on individuals, has affective consequences, directs cognitive processing, leads to negative effects when unmet, elicits goal-directed behavior, is nearly universal to all people, affects a wide variety of behaviors, and has implications that go beyond immediate psychological functioning. The need to form and establish social bonds has important benefits of defending oneself from emotional and physical
harm and protecting one’s resources against threats. Indeed, threatening events alone can stimulate the need to belong (Baumeister & Leary, 1995).

In essence, belongingness is a pervasive drive to establish and sustain at least a minimum number of lasting, positive, and significant interpersonal relationships. Baumeister and Leary (1995) asserted that this drive cannot be met by mere affiliation with other people, but that belongingness requires two important criteria to be met: that there be frequent positive (or at least not negative) interactions with a few other people, and that those interactions occur in the context of a stable and enduring framework of care and concern for the other’s welfare. As a fundamental human need, the failure to acquire a sense of belongingness often leads to pathological consequences that go beyond mere temporary distress. According to Baumeister and Leary, a deprived sense of belonging “has been linked to a large array of aversive and pathological consequences. People who lack belongingness suffer higher levels of mental and physical illness and are relatively highly prone to a broad range of behavioral problems, ranging from traffic accidents to criminality to suicide” (p. 511).

A sense of belonging has also been tied to one’s identity formation process. Vignoles, Jen, Regalia, Manzi, and Scabini (2006) included “belonging” as one of six “identity motives” (i.e. self-esteem, continuity, distinctiveness, meaning, belonging, and efficacy) that purportedly influence the processes by which one constructs and maintains one’s identity. Vignoles et al. defined identity motives as “pressures toward certain identity states and away from others, which guide the processes of identity construction” (p. 309). They concluded from their research that the degree to which an identity element satisfies, or does not frustrate, each motive will contribute to one’s perception of the
relative perceived centrality of that identity to one’s overall concept of self. The motive of belonging was found to indirectly influence the construction of perceived centrality through its contribution to the construction of self-esteem, while it had a direct influence on “identity enactment,” defined as “the extent to which individuals strive to communicate each of their identity elements to others in everyday life – a construct akin to self-presentation” (p. 309). Their participants reported feeling happier about, and therefore devoting greater amounts of attention to, identity elements that provided a stronger sense of belonging.

With respect to its application to college contexts, Tovar and Simon (2010) defined sense of belonging as “an individual’s sense of identification or positioning in relation to a group or to the college community, which may yield an affective response” (p. 210). Hurtado and Carter (1997) conducted a pioneering study on sense of belonging in college students, writing that “sense of belonging contains both cognitive and affective elements in that the individual’s cognitive evaluation of his or her role in relation to the group results in an affective response” (p. 328).

Strayhorn (2008, 2011a, 2011c, 2012) has studied and written extensively about the subject of college students’ sense of belonging. Strayhorn (2012) framed sense of belonging as a basic human need and motivation, sufficient to influence behavior. Additionally, he stated:

[Sense of belonging] refers to 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). It’s a cognitive evaluation that leads to an affective response or behavior. (2012, p. 3)

Strayhorn (2012) identified seven core elements of sense of belonging:
1. **Sense of belonging is a basic human need.** It is universal to all people, and a necessary precondition to higher-order needs such as knowledge and self-actualization.

2. **Sense of belonging is a fundamental motive, sufficient to drive human behavior.** It compels individuals to act.

3. **Sense of belonging takes on heightened importance in certain contexts, at certain times, and among certain populations.** It becomes even more relevant in moments when the most basic of human needs is threatened.

4. **Sense of belonging is related to, and seemingly a consequence of, mattering.** One matters to individuals; one belongs to a group or community in which he or she believes others care.

5. **Social identities intersect and affect college students’ sense of belonging.** Individuals have multiple and intersecting identities (Jones & Abes, 2013; Jones & McEwen, 2000). These social identities converge and intersect in unique ways that influence one’s sense of belonging.

6. **Sense of belonging engenders other positive outcomes, such as engagement, achievement, wellbeing, happiness, and optimal functioning.**

7. **Sense of belonging must be satisfied on a continual basis and likely changes as circumstances, conditions, and contexts change.** While sense of belonging tends to stabilize over time, it remains highly susceptible to positive or negative experiences. (p. 18-23)

According to Strayhorn (2008), literature pertaining to the sense of belonging falls into two categories: research on belonging as a concept, and empirical research that examines the relationship between belonging and educational outcomes.

**Research in Academic Contexts**

Sense of belonging has been researched extensively in various educational contexts, including middle school, high school, and college settings. Much of this research has identified a close association between students’ sense of belonging and important affective and educational outcomes.

**Pre-college settings.**

Cook, Purdie-Vaughns, Garcia, and Cohen (2012) examined the effect of belonging on middle school students, looking specifically at the impact on African Americans. They posited that early threats to belonging, especially during sensitive
transition periods such as the start of a new school year, can initiate a downward spiral where perceptions of threat rise and grades decline. Indeed, decreased belonging and increased threat are mutually-reinforcing perceptions that can have a cascading effect on additional negative outcomes that interfere with learning and inhibit performance. According to Cook et al., people tend to become vigilant in threatening environments, which prompt physiological, cognitive, and emotional coping reactions, making one’s sense of belonging contingent upon situational cues, and therefore continuously on trial by “turning the ups and downs of life into peaks and valleys of the self” (p. 479). Cook et al. proposed that for members of negatively-stereotyped minority groups, chronically threatening environments can jeopardize feelings of belonging, causing them to become contingent and vulnerable. These researchers assessed the impact of an intervention (i.e. having students write about their core values) intended to bolster students’ feelings of affirmation, and found that affirmed African American students were buffered against the erosion in belonging experienced by non-affirmed African American students. Indeed, the decline was eliminated altogether and remained missing even after controlling for grades during the two years of middle school. Additionally, the relationship between students’ sense of belonging and their GPA during middle school was significantly lower when they had been affirmed, suggesting that a sense of belonging and poor academic performance became disassociated as a result of having been affirmed.

Mallett et al. (2011) asserted that one’s sense of belonging in school is a critical determinant of academic achievement and retention for minority students. These researchers studied the experiences of junior high, senior high, and college students and found that students of color at all of these educational levels experienced greater
fluctuations in belonging than did White students. Mallett et al. concluded that environmental cues of negative stereotypes about achievement potential and underrepresentation of one’s group contribute to a sense of belonging uncertainty.

College settings.

Other studies have focused specifically on college students, and have affirmed the strong influence of environmental dimensions on students’ sense of belonging, particularly with regard to the influence of peer group relationships and the importance of feeling connected to the larger campus community (Freeman, Anderman, & Jensen, 2007; Hausmann et al., 2009; Morrow & Ackermann, 2012; Pittman & Richmond, 2008; Strayhorn, 2008, 2012). A foundational framework for much of this research is Tinto’s (1993) Student Integration Model, which in essence holds that the degree to which a student is integrated into the academic and social systems of an institution impacts that student’s likelihood to persist.

Pittman and Richards (2008) examined the sense of belonging in first-year college students and after controlling for socioeconomic status, gender, and minority status, found that those who had positive changes in belonging had corresponding positive changes in self-perception and decreases in problem behaviors, leading them to conclude that a sense of belonging is linked to students’ positive self-perceptions of social acceptance and academic competence. Additionally, in their study of first-year students, Freeman et al. (2007) found that students’ sense of social acceptance by both fellow students and by institutional faculty/staff accounted for 35% of the variance in students’ sense of belonging, prompting them to suggest that it could be the most important variable in relation to a sense of belonging. Similarly, Morrow and Ackermann (2012)
found that faculty support had a small, but statistically significant positive relationship with students’ intentions to persist, that peer support was a statistically significant predictor of second-year retention, and that motivational attitudes were partially related to retention between the first and second years.

Hausmann et al. (2009) found considerable evidence that students’ sense of belonging is related to positive educational outcomes such as GPA, satisfaction, commitment, and persistence. In fact, their results showed that social integration, identified by Tinto (1993) as having a direct effect on institutional commitment (which in turn has an influential effect on persistence), actually only has an indirect effect on institutional commitment through its impact on sense of belonging. Sense of belonging, then, has an important intervening effect between students’ social experiences and level of engagement and the strength of their commitment to the institution. These results led Hausmann et al. to recommend that future theoretical models of persistence include sense of belonging as a unique variable.

Relationship to social identities.

Others have studied the relationship between belonging and social identities among college students (Hurtado & Carter, 1997; Museus & Maramba, 2011; Strayhorn, 2008, 2011b, 2011d, 2012; Walton & Cohen, 2007, 2011). Walton and Cohen (2007) studied first-year students’ sense of “belonging uncertainty,” defined as the “global uncertainty about the quality of one’s social bonds in academic and professional domains” (p. 94), finding that minority students are disproportionately impacted by threats to their sense of belonging than are students who are members of the dominant culture. Walton and Cohen (2011) also conducted a three-year longitudinal study that examined
the impact of a brief intervention (i.e. a reframing of social adversity as common and transient) on college freshmen’s sense of belonging and its academic and health-related consequences, hypothesizing that the intervention would be particularly beneficial for African-American students. They found that the intervention raised the GPA of African-Americans relative to multiple control groups, cut the minority achievement gap in half, improved African-Americans’ self-reported health and well-being, and reduced the number of doctor visits within the three-year post-intervention period. The authors posit that the intervention prevented students from seeing adversity on campus as an indictment of their belonging, and that social belonging is an important psychological lever where targeted interventions can have substantive impacts on feelings of inequality, achievement, and health.

Strayhorn (2012) provided a thorough anthology of studies that examined the ways in which sense of belonging is experienced differently by students with varying social identities. In one of his own studies, Strayhorn (2008) used Tinto’s (1993) theory of departure to hypothesize that students’ academic and social involvement likely influence one’s sense of belonging on campus, finding that high academic achievers within Latino student populations feel more connected to their campus than Latinos who perform less well. He asserted that many Latino students must acquire new forms of sociocultural capital in order to succeed in some college settings, thereby representing a “second curriculum” that Latino students must often learn, sometimes at the expense of their own need to belong and fit-in at the institution. Strayhorn also found that varied and frequent interactions with diverse others impact a sense of belonging among all students and that the influence was greater among Latinos than Whites. He concluded that sense
of belonging may be a more culturally-relevant way of measuring the extent to which minority students are connected, attached, or find membership within a campus setting. Interestingly, Strayhorn’s study also revealed that contrary to prior studies demonstrating the positive outcomes of living on campus, Latino students at 4-year institutions do not appear to benefit from on-campus living to the same extent that other students do.

Like Strayhorn (2008), Hurtado and Carter (1997) also studied Latino students’ sense of belonging and used Tinto’s (1993) theoretical model as a framework for their study. Hurtado and Carter employed a longitudinal design to examine the extent to which Latino students’ background characteristics and institutional experiences in their first two years impacted their sense of belonging in their third year. Their results show that positive experiences in Latino students’ first year have a lasting effect into their third year, while perceptions of a hostile racial climate have a direct and lasting negative effect. Hurtado and Carter also found statistically significant differences between Latino students and other students in the ways in which they became integrated into an institution’s social system, as well as cultural differences in adjustment strategies. Hurtado and Carter, as well as Tierney (1999), have raised important concerns about the constructs prior researchers have used that, at best, fail to consider the social distance from isolation to integration some racial and ethnic groups may have that inhibit their participation in mainstream campus activities, or at worst, reflect an implicit assumption that the cultural differences of racial/ethnic groups should be diminished and that minority students should adopt the values and characteristics of the dominant college environment in order to effectively integrate.
Museus and Maramba (2011) similarly argued that Asian American students are often expected to commit “cultural suicide” (Tierney, 1999) in order to successfully integrate into their campus communities, which entails a severing of ties with their precollege cultures and communities in an effort to assimilate into the dominant campus cultures. These researchers examined the experiences of Filipino American students’ sense of belonging, and found that students’ connections to their cultural heritage are positively associated with and can predict a stronger sense of belonging. Additionally, they reported that the pressure on students to commit cultural suicide and their connections to their cultural heritages significantly and indirectly influenced their sense of belonging, mediated by the difficulty these students might experience in the process of adjusting to college. Museus (2008) posited that “cultural integrity,” meaning the affirmation of a student’s cultural identity (Tierney, 1999), can positively shape students’ experiences on campus, and that ethnic student organizations can play a substantial role in facilitating the cultural adjustment of Asian American and other racially and ethnically diverse students.

Hypothesized Model of College Students’ Sense of Belonging

Strayhorn (2012) posited a Hypothesized Model of College Students’ Sense of Belonging that is rooted in Maslow’s (1954a, 1954b) conceptualized hierarchy of needs. Strayhorn asserted that college students’ needs emerge in the same order as articulated by Maslow. Consistent with Maslow, Strayhorn stated that students must first satisfy more basic physiological and safety needs before they can adequately focus on belonging needs. However, belonging needs must be sufficiently satisfied before students can effectively work on satisfying needs related to self-esteem and self-actualization. These
needs emerge and are satisfied, or not, within various social spaces and contexts that comprise a student’s campus experience (e.g. classroom, residence hall, academic department, campus at-large). The salience of each need and motivation fluctuates within these different contexts and at different times within a student’s college experience. Satisfaction of the need for belonging typically leads to positive outcomes such as involvement, happiness, achievement, and retention. Inability to satisfy the need for belonging can lead to negative outcomes such as frustration, arrested development, unhappiness, depression, and even suicidal ideation (Strayhorn, 2012). Strayhorn’s hypothesized model provides a useful framework for understanding the context within which sense of belonging influences and motivates student behavior and outcomes.

**Sex and Gender**

Discourse about gender-inclusive spaces requires a clear distinction between the constructs of sex and gender. While there remains considerable debate about the definitions of and distinctions between sex and gender, the understanding that they are two different constructs has wide consensus. The American Psychological Association (2011) defined sex as “a person’s biological status and is typically categorized as male, female, or intersex (i.e., atypical combinations of features that usually distinguish male from female)” (“Introduction,” para. 9) while defining gender as “the attitudes, feelings, and behaviors that a given culture associates with a person’s biological sex” (“Introduction,” para. 10). The World Health Organization (n.d.) regards sex as “the biological and physiological characteristics that define men and women” (“Glossary of terms and tools,” para. 39), and gender as “socially constructed characteristics of women and men – such as norms, roles and relationships of and between groups of women and
Gender, then, is a socially-constructed way of assigning traits, behaviors, and attributes to particular sexes, thereby defining what is considered “masculine” or “feminine” characteristics. Earlier theorists (Garfinkel, 1967; Kessler & McKenna, 1978) challenged the pervasive cultural assumption that one’s gender identity is an immutable derivation of one’s biological sex, asserting that the very sense of being “male” or “female” is a product of the culturally-induced gender attribution process, rather than a natural set of traits, behaviors, or physical attributes. Some theorists assert that even the concept of biological sex is culturally-construed through the application of culturally-agreed-upon biological criteria for categorizing people as male or female, based on the shape of their genitalia or chromosomal typing at or before birth (West & Zimmerman, 1987).

**Gender Identity**

In this study, gender identity is understood as a socially-constructed and fluid identity by which individuals ascribe to and display traits that are culturally associated with masculine or feminine qualities. The gender with which one identifies may or may not match the gender assigned to that individual at birth, and for many, does not conform to the widely-understood binary construct of male or female being the only two recognized gender identity options. Wilchins (2004) defined gender identity as “the inner sense most of us have of being either male or female” (p. 8), while others defined it as “one’s sense of oneself as male, female, or transgender” (American Psychological Association, 2011). Still others claimed that gender identity does not fit so neatly into
clear and distinct categories. Some theorists conceive of it as a complex struggle between dominant social powers, personal agency, and identity formation that can result in many varied ways of describing or naming one’s gender identity (Anderson, 2011; Bornstein, 1995; Rankin & Beemyn, 2012; Risman, 2009). Rankin and Beemyn, for example, found over one hundred different ways that respondents described their gender identity in a study of gender non-conforming youth.

Some theorists argued that gender is not something one has, but something one does (Bornstein, 1998; Westbrook & Schilt, 2009; West & Zimmerman, 1987). West and Zimmerman (1987) posited that gender is a product of social doings, or “accomplishments,” rather than a set of traits or culturally-assigned roles. “Doing gender” is the activity of managing one’s conduct to conform (or not) to normative expectations of attitudes and activities that are considered appropriate for one’s sex category. Gender, then, is not as much an aspect of what one is, but rather is what one does, and does recurrently, as one interacts with others. One does gender as an “interactional process of crafting gender identities that are then presumed to reflect and naturally derive from biology” (Westbrook & Schilt, 2009, p. 442).

Westbrook and Schilt (2009) asserted that failing to “do gender” in a way that is not reflective of one’s biological sex can often be perceived as a threat to heterosexuality, leading to oppression of transgender individuals as a reinforcement of a heteronormative system that pushes individuals into traditional masculine and feminine roles and bestows privilege. Similarly, Risman (2009) wrote about gender as a fluid structure that operates at an individual, interactional, and institutional level of societies, which serves to shape interactional expectations, establish hierarchies, and police social groups.
Within a higher educational context, gender has been used historically to categorize individuals for purposes of establishing physical spaces (e.g. locker rooms, bathrooms, residence halls) and academic and non-academic programs (e.g. athletics, gender-based studies, gender support offices). Yet students who do not “do gender” in a traditional manner often find themselves forced to use physical spaces that are in conflict with their identities, or encounter gender-based qualifications or assumptions tied to institutional programs that limit or complicate their participation in such programs.

**Transgender**

For most people, their gender identity matches the gender they were assigned at birth. Westbrook and Schilt (2009) refered to such individuals as “cisgendered,” while Garfinkel (1967) used the term “gender normals.” Yet for others, their gender identity differs from the gender attributed to them based on their sex category, and the common gender identity category applied to such individuals is “transgender.” Conway (2001) asserted that approximately one in every 500 people experience a conflict between their gender identity and their sex category, and have therefore attempted to resolve that conflict through some form of transition at some point in their lives. Some who are transitioning between the gender binary would consider themselves “transgender,” but there are others who consider their identity more fluid than static or uni-directional, preferring the term “queer,” “gender queer,” or “gender non-conforming” (Beemyn, 2003; Rankin & Beemyn, 2012).

Gender non-conformance is often met with serious resistance by cisgender individuals, as transgender individuals can be seen as a threat to heterosexuality and heteronormativity (Westbrook & Schilt, 2009). Kitzinger (2005) defined
heteronormativity as the suite of cultural, legal, and institutional practices that maintain normative assumptions that there are two and only two genders, that gender reflects biological sex, and that only sexual attraction between these “opposite” genders is natural or acceptable. Such heteronormative practices establish a societal structure that often leaves transgender people feeling trapped, isolated, invisible, and impoverished in their self-esteem (Mollenkott, 2001). Goffman (1977) posited that there is an arrangement between the sexes that establishes role expectations for men and women; when individuals violate this arrangement, as transgender people often do, it can become readily apparent that they are out of place and that if they would just subscribe to the accepted arrangement, their troubles would go away.

For many transgender persons, college is a time and setting when they begin to transition to their internal gender identity (Conway, 2002). This can be a difficult process for transgender students, who often experience harassment, ridicule, and other acts of discrimination or ignorance from classmates, instructors, and staff, or who encounter physical spaces such as residence halls, locker rooms, bathrooms, health centers, and gender resource centers that reinforce the gender binary and therefore, contribute to transgender students’ sense of alienation (Alexander, 2009; Anderson, 2011; Beemyn, 2003; Beemyn, Curtis, Davis, & Tubbs, 2005; Bleiberg, 2004; Campbell, 2012; Evans, Forney, Guido, Patton, & Renn, 2010; Negrete, 2008; Rankin, 2005; Rankin & Beemyn, 2012). Beemyn and others (2003; 2005) asserted that even well-meaning faculty and administrators may continue the marginalization of transgender or gender-variant students through policies and practices that are based on a lack of basic knowledge about transgender issues and needs. For example, instituting gender-inclusive residential
spaces may be an altruistic effort by campus administrators to serve the needs of transgender students. However, if access to such spaces is limited only to those who identify as transgender, then the institution’s policy requires transgender students to “out” themselves in order to request access to the space, which many transgender students are hesitant to do. Additionally, supportive faculty and staff may unknowingly ask questions of transgender students that could be considered invasions of privacy (e.g. sex reassignment intentions or progress). Such affronts can lead to even further depths of isolation for transgender students who may now question the ability of campus administrators and faculty to effectively support their needs.

**Sexual Orientation**

Sexual orientation refers to the sexual identities of those to whom an individual is sexually and romantically attracted (American Psychological Association, 2011; Campbell, 2012). Traditional categories of sexual orientation include heterosexual (attracted to members of the “opposite” sex), homosexual (attracted to members of the “same” sex), and bisexual (attracted to members of “both” sexes). However, such limited categories have come under significant criticism as research suggests that sexual orientation occurs on a continuum, rather than as discrete categories, and that sexual orientation may be more fluid for some people than previously characterized (American Psychological Association, 2011; Diamond, 2005; Kinsey, Pomeroy, & Martin, 1948; Storms, 1980). Despite these many variations, the designation LGBTQ (Lesbian, Gay, Bisexual, Transgender, Queer) is typically used to refer to individuals of all sexual orientations and gender identities that differ from the norm (Campbell, 2012).
As with those with gender non-conforming identities, students with differing sexual orientations often experience significant discrimination and other challenges in college settings (D’Augelli & Rose, 1990; Fanucce & Taub, 2010; Hill et al., 2002; Rankin, 2005). D’Augelli and Rose (1990) discovered that nearly three-fourths of all gay and lesbian college students experienced some form of verbal abuse. While campus climates for LGBTQ students have significantly improved since the 1990’s, some campus environments remain places where many LGBTQ students experience harassment and discrimination, such as in residence halls (Strayhorn & Mullins, 2012), which may prevent them from finding a sense of belonging in campus communities (Rankin, 2005). This is a gap addressed by the present study.

**Conclusion**

In this chapter, I reviewed much of the existing literature on students’ sense of belonging and described Strayhorn’s (2012) Hypothesized Model of College Students’ Sense of Belonging. Additionally, concepts relevant to this study (i.e. sex, gender, gender identity, sexual identity, and sexual orientation) were defined. An overview of the gendered history of residence halls in the U.S. situated gender-inclusive housing practices within an historical and cultural context. Finally, the literature describing the influence of on-campus residential living on students was reviewed.

While the existing literature about the impact of on-campus residence halls on students is extensive and broad, and generally demonstrates that on-campus living has a significantly positive effect for most students on many important dimensions, there is an absence of studies specifically devoted to examining the influence of gender-inclusive residential environments on students. This study provides important data for
administrators and researchers alike regarding the relationship between gender-inclusive housing settings and increased sense of belonging among students.
Chapter 3: Methods

This study examined the relationship between gender-inclusive campus housing environments and students’ sense of belonging using quantitative survey methods. The three research questions guiding this study were:

1. Do students who live in gender-inclusive (GI) campus housing units experience a stronger sense of belonging than do students who live in gender-exclusive (GE) campus housing units?

2. Are students who live in GI campus housing units more likely than those who live in GE campus housing units to identify as lesbian, gay, or bisexual?

3. Are students who live in GI campus housing units more likely than those who live in GE campus housing units to identify as transgender or queer?

Hypotheses

Multivariate techniques were used to analyze the following hypotheses:

H1: Students living in GI campus housing units have a stronger sense of belonging than students living in GE campus housing units.

H2: Students living in GI campus housing units are more likely than students living in GE campus housing units to identify as gay, lesbian, or bisexual.
H3: Students living in GI campus housing units are more likely than students living in GE campus housing units to identify as transgender or queer.

H0: There are no statistical differences between students living in GI campus housing units and those living in GE campus housing units with regard to sense of belonging, sexual orientation, and gender identity.

**Sample Selection**

Below are descriptions of the institution at which this study was conducted and of the student population of interest in the study.

**Institutional Sample**

The institutional setting for the study is a highly-selective small private liberal arts college in the Midwest, which has an on-campus housing requirement for all students who are below 25 years of age. The institution currently offers students at the second year level and higher the opportunity to live in a GI residential unit irrespective of their sex, sexual orientation, or gender identity. First-year students are currently assigned to a housing unit that corresponds to the gender identity claimed on each individual’s official student record and are not offered the option to live in a GI unit.

**Student Sample**

The population under consideration consists of students who live in housing units designated as GI, meaning that they live in a unit within which students of any sex or gender identity can reside together. Criteria for participants in the study include students with sophomore, junior, or senior status, and those who voluntarily elect to live in a GI housing unit. First-year students were excluded in this study because the institution does
not currently accommodate first-year students in GI or mixed-gender housing units, consistent with many other campuses that have similar practices that do not allow first-year students to reside in GI housing units (Campbell, 2012; Chave, 2014). Furthermore, most first-year students are assigned a room and roommates by their institution based on responses to a questionnaire, rather than by having students select a room and roommates themselves. Finally, many campuses require first-year students to live on campus, while students at a sophomore level and higher are often provided an option to live on or off campus.

Thirty-seven individuals responded in the GI campus housing unit group (43% response rate), and 57 responded in the GE campus housing group (29% response rate), for a total sample size of \( n = 94 \) (combined 38% response rate). Fifty-seven percent of the respondents in the GI group were White, 19% were Asian, and almost a quarter were Hispanic/Latino, Black/African American, or “Other.” Similar racial identity results were found for respondents in the GE group. More respondents in the GI group identify as male than female (51.4% versus 45.9%), while more respondents in the GE Group identify as female than male (73.7% versus 24.6%). The same number of respondents identify as varying/queer between both groups.

**Variables**

The dependent variable of primary interest in the study is sense of belonging as measured by the College Student Belongingness Scale (CSBS), which is described more fully in this chapter. The independent variable of primary interest is “housing unit gender designation” (categorized as GI versus GE). Other variables used in the study for
grouping purposes or statistical analyses include “sexual orientation” and “gender identity.”

Control variables are used in multivariate analyses to account for the portion of the variance in the outcome that is likely not due to the influence of the independent variable(s). Including such factors in the analysis help subtract the “noise” to assist the researcher in isolating the variables of interest, and serve an important function in establishing the reliability of the results (Keppel, 1991). The control variables (covariates) used in this study are described below, along with corresponding numerical codes used in the analyses, and were measured using the survey instrument developed for this study:

1. **Race/ethnicity.** Respondents were asked to select the classification that best represented their racial identity. Response options were drawn from the standard race/ethnicity categories established in 1997 by the Integrated Postsecondary Education Data System (IPEDS), and included:
   1. American Indian/Alaskan Native
   2. Asian
   3. Black or African American
   4. Hispanic or Latino
   5. Native Hawaiian or Other Pacific Islander
   6. White
   7. Multiracial
   8. Other

2. **Cumulative College GPA.** Respondents were asked to report their cumulative college grade point average (or GPA) using the following scale:
   1. 1.00 or lower
   2. 1.01 – 1.32
   3. 1.33 – 1.65
   4. 1.66 – 1.99
   5. 2.00 – 2.32
   6. 2.33 – 2.65
   7. 2.66 – 2.99
   8. 3.00 – 3.32
   9. 3.33 – 3.65
   10. 3.66 – 3.99
   11. 4.00 or higher
3. **Sexual Orientation.** This variable was used as a covariate in H1 and as a dependent variable in H2. Respondents were asked to identify their sexual orientation with one of the following response options:
   1. Heterosexual or Straight
   2. Gay or Lesbian
   3. Bisexual
   4. Other

4. **Gender Identity.** This variable was used as a covariate in H1 and as a dependent variable in H3. Respondents were asked to report their gender identity with one of the following response options:
   1. Male
   2. Female
   3. Transgender
   4. Varying/Queer

**Instrumentation**

A local questionnaire (see Appendix) was developed by the researcher for the purposes of this study. The survey initially included eight scale items from the College Students Belongingness Scale, or “CSBS,” that purported to measure sense of belonging; each was measured on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The initial scale items were:

1. I feel a sense of belonging at my college.
2. I would choose this college again, if I had it to do over.
3. My friends would miss me if I left college.
4. I feel valued and cared about at my college.
5. I am satisfied with my on-campus housing experience this year.
6. Other students in my residence hall care about me.
7. I believe I “fit in” on this campus.
8. I am satisfied with my overall experience on this campus.

Other items such as satisfaction with residence hall experience, satisfaction with overall college experience, academic success, and intention to persist were included in the survey for potential usage in future research, but were not included in the analyses for the present study. Participants were also asked to respond to a number of demographic
questions that were used as control variables in the analysis to reduce any variance that may be attributable to these group-level factors.

Pilot Study

A pilot study was conducted to examine the reliability and validity of the instrument (described later in this chapter), and to determine the underlying structure of the initial data collected. The pilot survey was administered to student Resident Assistants (RAs) at the institution, and 26 out of 77 RAs responded to email solicitations to participate in the pilot (29% response rate). In addition to responding to the survey items, participants were provided with an open-ended question and invited to give feedback about the survey’s overall design. Feedback about the design led to revisions to the original survey.

Principal Components Analysis

A Principal Components Analysis (PCA) is a type of factor analysis, or dimension reduction technique, that transforms variables into a smaller set of linear combinations that take into account all or much of the variance contained in the original variables. PCA was conducted on the responses using all eight scale items in the survey with the goal of identifying the relationship between the scale items and possibly reducing the number of survey items to be used in the statistical analysis. As a part of the PCA, data were examined for their suitability for such an analysis. The correlation matrix revealed coefficients ranging from 0.420 to 0.917, indicating a moderate to strong relationship among all eight scale items. While the pilot sample size was fairly small and could raise concern about the adequacy of factor analysis techniques, Tabachnick and Fidell (2013) stated that smaller sample sizes are sufficient if scale items have multiple high loading
marker variables (above 0.80). They also recommend that the correlation matrix demonstrate evidence of coefficients higher than 0.30. In this pilot study, there were six correlations with coefficients above 0.80 and none below 0.42, and all correlations were statistically significant ($p \leq 0.05$). Additionally, the Kaiser-Meyer-Olkin (KMO) value, which measures sampling adequacy, was 0.862, surpassing Kaiser’s (1974) recommended value of 0.60. Furthermore, Barlett’s (1954) Test of Sphericity reached statistical significance ($p = 0.000$). These measures indicated that proceeding with factor analysis was appropriate.

Principal component analysis revealed only one component with an eigenvalue exceeding 1.0. With this one component, almost three-quarters of the variance was explained (see Table 1). Additionally, in inspecting the screeplot (see Figure 1), there was a clear change in the slope of the line after the first component.

Three of the eight items in the belongingness scale used in this study were borrowed from Strayhorn’s (2011b, 2011d) Sense of Belonging in College Scale (SBC). Correlations in this pilot study are similar to those reported elsewhere by Strayhorn. Furthermore, the additional items that were added to the scale correlated strongly with all other scale items, including those borrowed from Strayhorn’s (2012) scale.
Table 1

Total Variance Explained with One Factor Solution

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial Eigenvalues</th>
<th>Extraction Sums of Squared Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% of Variance</td>
</tr>
<tr>
<td>1</td>
<td>5.876</td>
<td>73.455</td>
</tr>
<tr>
<td>2</td>
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<td>9.817</td>
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<tr>
<td>3</td>
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<td>5.347</td>
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<td>.062</td>
<td>.776</td>
</tr>
<tr>
<td>8</td>
<td>.059</td>
<td>.739</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.

Figure 1

Screeplot for PCA with One Factor Solution

Reliability

Reliability is concerned with the question of whether the results from a study are consistent over repeated administrations (Bryman, 2004; Hair, Anderson, Tatham, & Black, 1998). In examining the reliability of the CSBS, Cronbach’s alpha was calculated
to determine the scale’s internal consistency, or the degree to which the scale items “hang together” and appear to be measuring the same underlying construct. The Inter-Item Correlation Matrix revealed high positive values throughout, demonstrating that all of the scale items were indeed measuring the same underlying characteristic. The Cronbach’s alpha coefficient for this pilot study was 0.945, indicating a high degree of internal consistency. Furthermore, all but one of the Corrected Item-Total Correlation values that appeared in the Item-Total Statistics table were above Nunnally’s (1978) recommended level of 0.70, further reinforcing the conclusion that CSBS items correlated strongly to the total score. The one scale item performing differently, “I am satisfied with my on-campus housing experience this year,” produced an alpha score of 0.686 in the Corrected Item-Total Correlation column, and an alpha of 0.948 when the item was deleted from the analysis, which is just slightly higher than the overall alpha score of 0.945. This indicated that this item may be behaving differently than the other scale items and should be used cautiously in additional analyses. Nonetheless, the pilot data supported the conclusion that the CSBS involves a strong single component, and is a reliable measure of respondents’ sense of belonging.

Validity

Validity is the degree to which a scale accurately measures what it is intended to measure (Hair et al., 1998). Internal validity relates to the issue of causality between the independent and dependent variables. This study involves a cross-sectional design, where data are collected on more than one case at a single point in time, rather than an experimental design, where variables are manipulated and measured to determine a causal impact on a dependent variable (Keppel, 1991). As such, this study lacked the
degree of internal validity usually associated with experimental research. However, other measures of validity can be used to assess validity in this study.

Construct validity concerns the question of whether a measure really does measure the construct it claims to be measuring (Bryman, 2004). With regard to this examination, the pilot study and full study produced similar correlations among scale items and similar results from statistical analyses. Additionally, the scale used in this study borrowed several items from Strayhorn’s (2012) SBC scale with similar correlations between the two scales. Further usage of this scale in other research efforts will help further establish its construct validity.

Face validity refers to whether the measure apparently reflects the content of the concept in question; it is another useful way of assessing the validity of a study (Bryman, 2004). Face validity was assessed using feedback from expert reviewers, who helped guide the selection of variable and response options, and the design of the survey itself. Additionally, external validity is concerned with whether the results of a study can be generalized beyond the specific research context and tends to be strong when a random sample is used for data collection (Bryman, 2004). This study utilized random samples drawn from the same institution, thereby addressing this guideline for external validity.

**Participant Feedback**

Participants were provided an opportunity to give feedback on the survey design and items through an open-ended question at the end of the survey. Only two responses were received in this present study. One respondent suggested that “transgender” does not make sense as a gender identity option, and remarked that gender identities should only appear as “man,” “woman,” or “genderqueer/nonbinary/other.” Additionally, this
respondent suggested that birth sex options should include “intersex” in addition to “male” and “female,” and that one need only to compare gender identity with birth sex category to determine if a respondent is transgender. Response options used in the survey (“male,” “female,” “transgender,” and “varying/queer”) were chosen deliberately after review of existing literature as the general ways that gender identity variants are conceived and named in social science research (American Psychological Association, 2011; Beemyn, 2003; Rankin & Beemyn, 2012; Westbrook & Schilt, 2009, 2014; Wilchins, 2004). Since the options the respondent suggested were already present in the existing options, and retaining “transgender” in the list of response options aided in data analysis procedures, no changes were made to that survey item or responses. Additionally, while “intersex” is a recognized sexual identity, some estimate that only 1 to 2% of people are born with this sexual identity (Greenberg, 2012). As such, the likelihood of there being an intersex individual taking this survey was very small, so to aid in data analysis procedures, birth sex categories were limited to “male” and “female.”

Another respondent remarked that the race/ethnicity survey item should include the ability to select multiple choices. Because one existing response option was “multiracial,” no changes were made to this survey item.

Data Collection Procedures

Institutional Review Board approval was obtained both by the researcher’s doctoral-degree granting institution and by the participating institution. A survey software program was used to create an online version of the questionnaire. Because the number of students occupying a GI housing unit is typically a small subset of the entire student housing population at a given campus, all 87 students living in GI units were
invited to participate in the survey to help ensure an adequate sample was obtained. Additionally, a random sample of students living in GE campus housing units was recruited for participation in the study. Two hundred students living in GE housing units were invited to participate, with the assumption that roughly 20 to 30% of them would do so. These students were emailed a link to an identical online questionnaire and their responses were used for comparison purposes. This sampling method allowed for similar sample sizes for those living in gender-inclusive versus gender-exclusive housing units. Different questionnaire links were used to ensure that the samples remained distinct from each other in the data collection process.

Housing administrators were asked to send the web-based survey links by email to students who live in their residential communities according to their respective housing unit types (GI versus GE). Participants received the survey link in mid-January, and were asked to respond within a two-week timespan. An incentive of a small $5 gift card to a local eatery was offered to all respondents. To ensure confidentiality, participants were not asked to report their names, room numbers, or other direct identifiers, and the researcher had no direct contact with any participants. Additionally, IP addresses were not collected by the online survey administration system. A reminder email was sent to participants in both groups after the first week, requesting participation by the two-week questionnaire deadline. A third reminder email was sent to respondents two days before the deadline. When the response deadline arrived, there were only 21 respondents in the GI group, compared to 57 respondents in the GE group. Consequently, one additional reminder email was sent to potential respondents in the GI group to try to provide greater
parity in response rates between the groups. After the one-week extension, there were 37 respondents in the GI group, and the survey was closed.

**Data Analysis Procedures**

Analysis of covariance (ANCOVA) was used to test the first hypothesis (H1). ANCOVA is a technique that is used to simultaneously explore the relationship between several independent variables and one dependent variable, while also controlling for additional independent variables (covariates) that may be influencing the dependent variable but are not of primary interest in the study. ANCOVA is similar to analysis of variance (ANOVA) in that a single dependent variable is being analyzed simultaneously across three or more groups, but differs in that it allows the researcher to remove extraneous influences from the dependent variable, thereby reducing the within-group variance. In an ANCOVA analysis, variation in the dependent variable that is associated with one or more covariates (extraneous influences) is removed; then an ANOVA analysis is conducted to measure variance in the dependent variable without the “noise” that would otherwise be present with the covariates (Hair et al., 1998). Furthermore, an important benefit of ANCOVA is a reduction in the possibility of a Type I error (incorrectly rejecting the null hypothesis by stating that a significant difference exists when one does not) by controlling the overall error rate that increases each time a separate analysis is conducted, such as conducting separate $t$ tests between each group (Hair et al., 1998).

The second and third hypotheses (H2 and H3) were tested using the chi-square technique. Chi-square is used to measure whether the distribution of categorical variables differs between two or more independent groups (Hair et al., 1998), such as
one’s sexual orientation (H2) and gender identity (H3) in the present study. Responses to these questionnaire items were compared between those living in GE units versus those living in GI units in order to determine if there is a statistically significant difference in the sexual orientation and/or gender identity of those choosing to live in GI housing units.

**Conclusion**

The analytical methods described in this chapter allow for a thorough examination of the stated research hypotheses by exploring differences in sense of belonging between students who live in GI campus housing units and those in GE campus housing units, as well as their gender identities and sexual orientations. Collecting data through a self-report questionnaire provided important information on students’ identity categories, as well as direct insight into the extent of their sense of belonging on their campuses. ANCOVA provided a robust analytical technique to compare differences in belongingness mean scores between GI and GE groups while also controlling for extraneous variance. Chi-square allowed for the investigation of differences in frequencies between groups on an item using a non-metric scale (sexual orientation and gender identity). The next chapter presents a summary of the study’s findings, and the final chapter discusses these findings within the context of existing literature on the subject.
Chapter 4: Results

The aim of this study was to examine the relationship between gender-inclusive college housing environments and students’ sense of belonging. The research questions explored in this study are as follows:

1. Do students who live in gender-inclusive (GI) campus housing units experience a stronger sense of belonging than do students who live in gender-exclusive (GE) campus housing units?

2. Are students who live in GI campus housing units more likely than those who live in GE campus housing units to identify as lesbian, gay, or bisexual?

3. Are students who live in GI campus housing units more likely than those who live in GE campus housing units to identify as transgender or queer?

Multivariate techniques were used to analyze the following hypotheses:

H1: Students living in GI campus housing units have a stronger sense of belonging than students living in GE campus housing units.

H2: Students living in GI housing units are more likely than students living in GE housing units to identify as gay, lesbian, or bisexual.
H3: Students living in GI campus housing units are more likely than students living in GE housing units to identify as transgender or queer.

H0: There are no statistical differences between students living in GI housing units and those living in GE housing units with regard to sense of belonging, sexual orientation, and gender identity.

Quantitative methods were employed to analyze differences in survey responses between students living in GI housing units and students living in GE housing units. This chapter presents the results from that analysis.

**Dimensions of Final Data Set**

The survey was distributed to all students living in GI campus housing units \((n = 87)\) and to a random sample of all students living in GE campus housing units \((n = 200)\) at the institution. Thirty-seven individuals responded in the GI group (43% response rate), and 57 responded in the GE group (29% response rate), for a total sample size of 94 (combined response rate: 38%). While these may be deemed low response rates, they are typical response rates for online surveys, and there is insufficient evidence that online surveys with low response rates produce biased evaluations anyway (Bennett & Sid Nair, 2010).

**Descriptive Statistics of Covariates**

Responses were sorted into two groups: GI or GE, based on the student’s campus housing option. Frequency statistics were computed for those items in the survey that were measured on a nominal scale. Those items that were used in further analyses in this study are shown in the tables below. As seen in Table 2, 57% percent of respondents in
the GI group were White, 19% were Asian, and almost a quarter were Latino, Black, or "Other." Similar results were found in terms of race/ethnicity for the GE group.

Table 2

Frequency of Race/Ethnicity Categories

<table>
<thead>
<tr>
<th>Group</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>GI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>7</td>
<td>18.9</td>
<td>18.9</td>
<td>18.9</td>
</tr>
<tr>
<td>Black or African American</td>
<td>2</td>
<td>5.4</td>
<td>5.4</td>
<td>24.3</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>5</td>
<td>13.5</td>
<td>13.5</td>
<td>37.8</td>
</tr>
<tr>
<td>White</td>
<td>21</td>
<td>56.8</td>
<td>56.8</td>
<td>94.6</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>5.4</td>
<td>5.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>GE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>7</td>
<td>12.3</td>
<td>12.3</td>
<td>12.3</td>
</tr>
<tr>
<td>Black or African American</td>
<td>5</td>
<td>8.8</td>
<td>8.8</td>
<td>21.1</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>7</td>
<td>12.3</td>
<td>12.3</td>
<td>33.3</td>
</tr>
<tr>
<td>White</td>
<td>34</td>
<td>59.6</td>
<td>59.6</td>
<td>93.0</td>
</tr>
<tr>
<td>Multiracial</td>
<td>3</td>
<td>5.3</td>
<td>5.3</td>
<td>98.2</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>1.8</td>
<td>1.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Cumulative college grade point averages (GPAs) were measured using dummy variables for ranges of scores:

1 = 1.00 or lower
2 = 1.01 – 1.32
3 = 1.33 – 1.65
4 = 1.66 – 1.99
5 = 2.00 – 2.32
6 = 2.33 – 2.65
7 = 2.66 – 2.99
8 = 3.00 – 3.32
9 = 3.33 – 3.65
10 = 3.66 – 3.99
11 = 4.00 or higher
When examining the frequency distribution of reported cumulative GPAs in Table 3, there appear to be observed differences with more students in the GE group reporting higher GPAs. A review of descriptive statistics in Table 4 indicates that while the data is not highly skewed, there is a fairly high level of kurtosis. However, as shown in Table 5, when a one-way between-groups ANOVA is conducted on the mean GPA scores between the groups, the result is not significant at the $p < 0.05$ level: $F(1, 92) = 2.03, p = 0.158$. Consequently, there are no real differences in respondents’ cumulative GPAs between the GI and GE groups.

Examination of gender identity frequencies suggests that there may be a statistically significant difference in the reported gender identities of respondents between the two groups. Table 6 demonstrates that more respondents in the GI group identify as male than female (51% versus 46%), while more respondents in the GE Group identify as female than male (74% versus 25%). The same number of respondents identify as varying/queer between both groups. A chi-square test for independence, shown in Table 7, indicates a statistically significant association between gender identity and group membership: $\chi^2(2, n = 94) = 7.43, p = 0.024, Cramer’s V = 0.281$.

It is important to note that two of the six cells in Table 7 contained fewer than five frequencies, thereby violating an assumption of chi-square (Gravettier & Wallnau, 2000). As such, another chi-square analysis was conducted examining only respondents who identified as male and female (i.e. excluding transgender and varying/queer respondents). Results in Table 8 showed an even stronger difference by gender identity between the two groups: $\chi^2(1, n = 92) = 6.19, p = 0.013, phi = 0.283$. 

69
Table 3

Cumulative College GPA Frequencies

<table>
<thead>
<tr>
<th>Group</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>GI</td>
<td>2.00 - 2.32</td>
<td>1</td>
<td>2.7</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>2.33 - 2.65</td>
<td>4</td>
<td>10.8</td>
<td>10.8</td>
</tr>
<tr>
<td></td>
<td>2.66 - 2.99</td>
<td>11</td>
<td>29.7</td>
<td>29.7</td>
</tr>
<tr>
<td></td>
<td>3.00 - 3.32</td>
<td>11</td>
<td>29.7</td>
<td>29.7</td>
</tr>
<tr>
<td></td>
<td>3.33 - 3.65</td>
<td>4</td>
<td>10.8</td>
<td>10.8</td>
</tr>
<tr>
<td></td>
<td>3.66 - 3.99</td>
<td>6</td>
<td>16.2</td>
<td>16.2</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>GE</td>
<td>2.00 - 2.32</td>
<td>1</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td>2.33 - 2.65</td>
<td>5</td>
<td>8.8</td>
<td>8.8</td>
</tr>
<tr>
<td></td>
<td>2.66 - 2.99</td>
<td>8</td>
<td>14.0</td>
<td>14.0</td>
</tr>
<tr>
<td></td>
<td>3.00 - 3.32</td>
<td>20</td>
<td>35.1</td>
<td>35.1</td>
</tr>
<tr>
<td></td>
<td>3.33 - 3.65</td>
<td>13</td>
<td>22.8</td>
<td>22.8</td>
</tr>
<tr>
<td></td>
<td>3.66 - 3.99</td>
<td>9</td>
<td>15.8</td>
<td>15.8</td>
</tr>
<tr>
<td></td>
<td>4.00 or higher</td>
<td>1</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 4

Descriptive Statistics for GPA

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistic</td>
<td>Statistic</td>
<td>Statistic</td>
<td>Statistic</td>
<td>Statistic</td>
<td>Statistic</td>
<td>Statistic</td>
</tr>
<tr>
<td>GPA</td>
<td>94</td>
<td>5</td>
<td>11</td>
<td>8.07</td>
<td>1.305</td>
<td>-.081</td>
<td>.249</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>94</td>
<td>5</td>
<td>11</td>
<td>8.07</td>
<td>1.305</td>
<td>-.081</td>
<td>.249</td>
</tr>
</tbody>
</table>
Table 5

*ANOVA of Reported Cumulative GPAs Between Groups*

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is your cumulative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>college GPA? * Group</td>
<td>Between (Combined) Groups</td>
<td>3.417</td>
<td>1</td>
<td>3.417</td>
<td>2.027</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>155.062</td>
<td>92</td>
<td>1.685</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>158.479</td>
<td>93</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6

*Gender Identity Frequencies*

<table>
<thead>
<tr>
<th>Group</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>GI</td>
<td>Male</td>
<td>19</td>
<td>51.4</td>
<td>51.4</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>17</td>
<td>45.9</td>
<td>97.3</td>
</tr>
<tr>
<td></td>
<td>Varying/Queer</td>
<td>1</td>
<td>2.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>GE</td>
<td>Male</td>
<td>14</td>
<td>24.6</td>
<td>24.6</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>42</td>
<td>73.7</td>
<td>98.2</td>
</tr>
<tr>
<td></td>
<td>Varying/Queer</td>
<td>1</td>
<td>1.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 7

*Chi-Square Analysis of Reported Gender-Identities Between Groups*

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymptotic Significance (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>7.432^a</td>
<td>2</td>
<td>.024</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>7.408</td>
<td>2</td>
<td>.025</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>4.034</td>
<td>1</td>
<td>.045</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>94</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is .79.
Table 8

Chi-Square Analysis of Reported Gender-Identities Between Groups Excluding Transgender and Varying/Queer

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymptotic Significance (2-sided)</th>
<th>Exact Sig. (2-sided)</th>
<th>Exact Sig. (1-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>7.350a</td>
<td>1</td>
<td>.007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity Correction</td>
<td>6.192</td>
<td>1</td>
<td>.013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>7.313</td>
<td>1</td>
<td>.007</td>
<td></td>
<td>.008</td>
</tr>
<tr>
<td>Fisher's Exact Test</td>
<td>7.270</td>
<td>1</td>
<td>.007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>92</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 12.91.
b. Computed only for a 2x2 table

Table 9 displays the frequencies of respondents’ sexual orientations, which appear to be consistent between the two groups: Approximately 85% of respondents in both groups identify as heterosexual/straight, while 5% identify as gay/lesbian. At first glance, there may appear to be a difference in the number of respondents who identify as bisexual, but given the small number of respondents in that category, the difference is statistically insignificant.

Descriptive Statistics of Scale Items

Table 10 presents a summary of descriptive statistics for the initial eight items composing the College Student Belongingness Scale (CSBS), separated by GI and GE groups. The highest mean score for each group was observed for the same scale item that measures the extent to which “my friends would miss me if I left college”: M = 4.59 (SD = 0.50) for GI group; M = 4.19 (SD = 1.06) for GE group. The lowest mean score for the
### Table 9

**Sexual Orientation Frequencies**

<table>
<thead>
<tr>
<th>Group</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>GI</td>
<td>Heterosexual or straight</td>
<td>32</td>
<td>86.5</td>
<td>86.5</td>
</tr>
<tr>
<td></td>
<td>Gay or lesbian</td>
<td>2</td>
<td>5.4</td>
<td>91.9</td>
</tr>
<tr>
<td></td>
<td>Bisexual</td>
<td>2</td>
<td>5.4</td>
<td>97.3</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>1</td>
<td>2.7</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>37</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>GE</td>
<td>Heterosexual or straight</td>
<td>48</td>
<td>84.2</td>
<td>84.2</td>
</tr>
<tr>
<td></td>
<td>Gay or lesbian</td>
<td>3</td>
<td>5.3</td>
<td>89.5</td>
</tr>
<tr>
<td></td>
<td>Bisexual</td>
<td>6</td>
<td>10.5</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>57</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

GI group was for the item that measured satisfaction with “my on-campus housing experience this year”: $M = 3.38$ (SD = 1.34). The lowest mean score for the GE group measured the extent to which “other students in my residence hall care about me”: $M = 3.56$ (SD = 0.945).

Skewness and kurtosis values were relatively high, suggesting that data were not normally distributed for many scale items. A review of histograms for each group’s scale item responses indicated negative skewness patterns, as shown in Table 10. Finally, the Kolmogorov-Smirnov test for normality was statistically significant at the $p = 0.000$ level for all scale items, confirming that data are not normally distributed. However, ANCOVA was used to analyze scale item results, and ANCOVA is fairly robust against a violation of the assumption of normality when regression slopes are equal (Levy, 1980; Olejnik & Algina, 1984).
Table 10

*Descriptive Statistics for College Student Belongingness Scale*

<table>
<thead>
<tr>
<th>Group</th>
<th>Statistic</th>
<th>Statistic</th>
<th>Statistic</th>
<th>Statistic</th>
<th>Statistic</th>
<th>Statistic</th>
<th>Statistic</th>
<th>Statistic</th>
<th>Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>GI</td>
<td>I feel a sense of belonging at my college.</td>
<td>37</td>
<td>2</td>
<td>5</td>
<td>4.08</td>
<td>.862</td>
<td>-.987</td>
<td>.388</td>
<td>.828</td>
</tr>
<tr>
<td></td>
<td>I would choose this college again, if I had it to do over.</td>
<td>37</td>
<td>1</td>
<td>5</td>
<td>3.86</td>
<td>1.182</td>
<td>-.684</td>
<td>.388</td>
<td>-.636</td>
</tr>
<tr>
<td></td>
<td>My friends would miss me if I left college.</td>
<td>37</td>
<td>4</td>
<td>5</td>
<td>4.59</td>
<td>.498</td>
<td>-.402</td>
<td>.388</td>
<td>-1.947</td>
</tr>
<tr>
<td></td>
<td>I feel valued and cared about at my college.</td>
<td>37</td>
<td>2</td>
<td>5</td>
<td>4.00</td>
<td>.707</td>
<td>-.498</td>
<td>.388</td>
<td>.671</td>
</tr>
<tr>
<td></td>
<td>I am satisfied with my on-campus housing experience this year.</td>
<td>37</td>
<td>1</td>
<td>5</td>
<td>3.38</td>
<td>1.341</td>
<td>-.530</td>
<td>.388</td>
<td>-.875</td>
</tr>
<tr>
<td></td>
<td>Other students in my residence hall care about me.</td>
<td>37</td>
<td>1</td>
<td>5</td>
<td>3.43</td>
<td>.959</td>
<td>-.397</td>
<td>.388</td>
<td>-.073</td>
</tr>
<tr>
<td></td>
<td>I believe I “fit in” on this campus.</td>
<td>37</td>
<td>1</td>
<td>5</td>
<td>3.65</td>
<td>.919</td>
<td>-.579</td>
<td>.388</td>
<td>.699</td>
</tr>
<tr>
<td></td>
<td>I am satisfied with my overall experience on this campus.</td>
<td>37</td>
<td>1</td>
<td>5</td>
<td>4.00</td>
<td>1.000</td>
<td>-1.586</td>
<td>.388</td>
<td>3.034</td>
</tr>
</tbody>
</table>

continued
Table 10: Continued

<table>
<thead>
<tr>
<th>Valid N (listwise)</th>
<th>37</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GE</strong></td>
<td></td>
</tr>
<tr>
<td>I feel a sense of belonging at my college.</td>
<td>57</td>
</tr>
<tr>
<td>I would choose this college again, if I had it to do over.</td>
<td>57</td>
</tr>
<tr>
<td>My friends would miss me if I left college.</td>
<td>57</td>
</tr>
<tr>
<td>I feel valued and cared about at my college.</td>
<td>57</td>
</tr>
<tr>
<td>I am satisfied with my on-campus housing experience this year.</td>
<td>57</td>
</tr>
<tr>
<td>Other students in my residence hall care about me.</td>
<td>57</td>
</tr>
<tr>
<td>I believe I “fit in” on this campus.</td>
<td>57</td>
</tr>
<tr>
<td>I am satisfied with my overall experience on this campus.</td>
<td>57</td>
</tr>
</tbody>
</table>

Valid N (listwise) | 57 |
**Factor Analysis of Final Data**

Participants in the pilot study were Resident Assistants (RAs) at the institution, and therefore, may have responded differently than general residents would. Consequently, a Principal Component Analysis (PCA) was conducted on the final data set to confirm the structure of the data and the reliability of the scale as determined through the pilot study analysis. The correlation matrix of all eight initial CSBS items, displayed in Table 11, revealed correlations ranging from 0.070 to 0.775. Correlations were generally weaker than they were in the PCA conducted with the pilot data, but overall were suitable since most correlations exceeded the 0.30 threshold (Tabachnick & Fidell, 2013). Overall, the Kaiser-Meyer-Olkin (KMO) value was 0.867, and Barlett’s Test of Sphericity was statistically significant ($p = 0.000$), also indicating that the data are sufficient for factor analysis procedures.

The PCA analysis revealed two components with eigenvalues greater than 1.0. The second component just met the threshold to constitute a separate dimension with a coefficient of 1.057. Component 1 explained 52.5% of the variance, and Component 2 only contributed an additional 13% of the variance for a total of 65.7%. Additionally, an examination of the scree plot in Figure 2 reveals a sharp bend after Component 1 on the graph, providing further support for conducting statistical analysis using one component.
Table 11

*PCA Component Matrix for 8-Item Scale*

<table>
<thead>
<tr>
<th></th>
<th>I feel a sense of belonging at my college</th>
<th>I would choose this college again, if I had it to do over</th>
<th>My friends would miss me if I left college</th>
<th>I feel valued and cared about at my college</th>
<th>I am satisfied with my on-campus housing experience this year</th>
<th>Other students in my residence hall care about me</th>
<th>I believe I “fit in” on this campus</th>
<th>I am satisfied with my overall experience on this campus</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel a sense of belonging at my college.</td>
<td>1.000</td>
<td>.494</td>
<td>.464</td>
<td>.656</td>
<td>.127</td>
<td>.191</td>
<td>.649</td>
<td>.584</td>
</tr>
<tr>
<td>I would choose this college again, if I had it to do over.</td>
<td>.494</td>
<td>1.000</td>
<td>.448</td>
<td>.656</td>
<td>.387</td>
<td>.210</td>
<td>.484</td>
<td>.775</td>
</tr>
<tr>
<td>My friends would miss me if I left college.</td>
<td>.464</td>
<td>.448</td>
<td>1.000</td>
<td>.569</td>
<td>.238</td>
<td>.279</td>
<td>.476</td>
<td>.551</td>
</tr>
<tr>
<td>I feel valued and cared about at my college.</td>
<td>.656</td>
<td>.656</td>
<td>.569</td>
<td>1.000</td>
<td>.274</td>
<td>.372</td>
<td>.643</td>
<td>.707</td>
</tr>
<tr>
<td>I am satisfied with my on-campus housing experience this year.</td>
<td>.127</td>
<td>.387</td>
<td>.238</td>
<td>.274</td>
<td>1.000</td>
<td>.197</td>
<td>.070</td>
<td>.367</td>
</tr>
<tr>
<td>Other students in my residence hall care about me.</td>
<td>.191</td>
<td>.210</td>
<td>.279</td>
<td>.372</td>
<td>.197</td>
<td>1.000</td>
<td>.324</td>
<td>.260</td>
</tr>
<tr>
<td>I believe I “fit in” on this campus.</td>
<td>.649</td>
<td>.484</td>
<td>.476</td>
<td>.643</td>
<td>.070</td>
<td>.324</td>
<td>1.000</td>
<td>.570</td>
</tr>
<tr>
<td>I am satisfied with my overall experience on this campus.</td>
<td>.584</td>
<td>.775</td>
<td>.551</td>
<td>.707</td>
<td>.367</td>
<td>.260</td>
<td>.570</td>
<td>1.000</td>
</tr>
</tbody>
</table>
### Table 12

**Total Variance Explained with Two Factor Solution**

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial Eigenvalues</th>
<th>Extraction Sums of Squared Loadings</th>
<th>Rotation Sums of Squared Loadings(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% of Variance</td>
<td>Cumulative %</td>
</tr>
<tr>
<td>1</td>
<td>4.197</td>
<td>52.459</td>
<td>52.459</td>
</tr>
<tr>
<td>2</td>
<td>1.057</td>
<td>13.217</td>
<td>65.675</td>
</tr>
<tr>
<td>3</td>
<td>.898</td>
<td>11.221</td>
<td>76.897</td>
</tr>
<tr>
<td>4</td>
<td>.570</td>
<td>7.126</td>
<td>84.023</td>
</tr>
<tr>
<td>5</td>
<td>.474</td>
<td>5.927</td>
<td>89.949</td>
</tr>
<tr>
<td>6</td>
<td>.332</td>
<td>4.150</td>
<td>94.099</td>
</tr>
<tr>
<td>7</td>
<td>.265</td>
<td>3.311</td>
<td>97.410</td>
</tr>
<tr>
<td>8</td>
<td>.207</td>
<td>2.590</td>
<td>100.000</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.

### Figure 2

**Scree Plot for PCA**

![Scree Plot](image)
The component matrix in Table 13 demonstrates that seven of the eight original CSBS items loaded on Component 1 and two on Component 2. A Direct Oblimin rotation method was used to aid in the interpretation of the pattern of loadings. When reviewing the pattern matrix, only two items loaded on Component 2, and one item (i.e. “would choose this college again”) did so somewhat weakly at a value of 0.332. Additionally, one variable loaded weakly to Component 1 at a value of 0.364.

The scale item pertaining to satisfaction with one’s on-campus housing experience fails to load on the main component, and has a high loading on the second component. Additionally, as mentioned earlier, this scale item failed the significance test on the PCA correlation matrix involving two other scale items. Consequently, it could be assumed that this scale item is measuring a different experience than sense of belonging. Similar results were found for the item pertaining to the perceived care of other students in one’s residence hall.

Table 13

*Rotated Principal Component Analysis (PCA) for Eight-Item Scale*

<table>
<thead>
<tr>
<th></th>
<th>Component 1</th>
<th>Component 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel a sense of belonging at my college.</td>
<td>.865</td>
<td></td>
</tr>
<tr>
<td>I would choose this college again, if I had it to do over.</td>
<td>.681</td>
<td>.332</td>
</tr>
<tr>
<td>My friends would miss me if I left college.</td>
<td>.689</td>
<td></td>
</tr>
<tr>
<td>I feel valued and cared about at my college.</td>
<td>.868</td>
<td></td>
</tr>
<tr>
<td>I am satisfied with my on-campus housing experience this year.</td>
<td></td>
<td>.914</td>
</tr>
<tr>
<td>Other students in my residence hall care about me.</td>
<td>.364</td>
<td></td>
</tr>
<tr>
<td>I believe I “fit in” on this campus.</td>
<td>.887</td>
<td></td>
</tr>
<tr>
<td>I am satisfied with my overall experience on this campus.</td>
<td>.784</td>
<td></td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.\(^a\)

\(^a\) Rotation converged in 7 iterations.
A second PCA was conducted using only six items in the scale, removing these two items pertaining to on-campus housing experience satisfaction and perceived care of other students in one’s residence hall. The KMO value remained virtually consistent at 0.869, and Bartlett’s Test of Sphericity remained statistically significant at \( p = 0.000 \). However, the percentage of total variance explained increased to 65.42% with only one component exceeding an eigenvalue of 1.0. Table 14 provides a summary of these results. Additionally, in the new Component Matrix shown in Table 15, all variables load strongly to the single component.

**Table 14**

*Total Variance Explained with One Factor Solution*

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial Eigenvalues</th>
<th>Extraction Sums of Squared Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% of Variance</td>
</tr>
<tr>
<td>1</td>
<td>3.925</td>
<td>65.421</td>
</tr>
<tr>
<td>2</td>
<td>.655</td>
<td>10.909</td>
</tr>
<tr>
<td>3</td>
<td>.580</td>
<td>9.665</td>
</tr>
<tr>
<td>4</td>
<td>.351</td>
<td>5.843</td>
</tr>
<tr>
<td>5</td>
<td>.282</td>
<td>4.702</td>
</tr>
<tr>
<td>6</td>
<td>.208</td>
<td>3.461</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.
Table 15

*Principle Component Analysis (PCA) for Six-Item Scale*

<table>
<thead>
<tr>
<th>Item</th>
<th>Component 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel a sense of belonging at my college.</td>
<td>.793</td>
</tr>
<tr>
<td>I would choose this college again, if I had it to do over.</td>
<td>.801</td>
</tr>
<tr>
<td>My friends would miss me if I left college.</td>
<td>.711</td>
</tr>
<tr>
<td>I feel valued and cared about at my college.</td>
<td>.879</td>
</tr>
<tr>
<td>I believe I “fit in” on this campus.</td>
<td>.787</td>
</tr>
<tr>
<td>I am satisfied with my overall experience on this campus.</td>
<td>.870</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.

a. 1 component extracted.

Given the improvement in the percentage of variance explained by removing two scale items that were loading weakly to the main component, and the low correlations between those items and the other six items, the CSBS was reduced in the present study to comprise the following six scale items:

1. I feel a sense of belonging at my college.
2. I would choose this college again, if I had it to do over.
3. My friends would miss me if I left college.
4. I feel valued and cared about at my college.
5. I believe I “fit in” on this campus.
6. I am satisfied with my overall experience on this campus.

**Results for Hypothesis #1**

The first hypothesis (H1) posits that students living in GI units have a stronger sense of belonging than students living in GE units. An Analysis of Covariance (ANCOVA) was conducted to evaluate whether there are any significant differences between GI and GE groups, while controlling for variables that may have a confounding influence on the dependent variable. Covariates used in the analysis were race and cumulative college grade point average (GPA).
ANCOVA requires a number of assumptions to be met in order for the results to be meaningful. These assumptions include random sampling, independent measurement of the covariate(s), normality, homogeneity of variance, linearity between the dependent variable and the covariate(s), and homogeneity of regression slopes. All of these were met in the present student. For instance, Levine’s Test of Equality of Error Variances, testing for homogeneity of variance, was statistically insignificant ($p = 0.673$), affirming that there was no violation of this assumption. Also, homogeneity of regression slopes were examined using SPSS’s custom General Linear Model function, and the results for all interactions were statistically insignificant ($p \leq 0.05$).

Respondents’ CSBS scores were summed to establish a single dependent variable for analysis. A one-way between-groups ANCOVA was conducted using the newly calculated scale score as the dependent variable and the independent variable was group membership (GI or GE). The covariate of race was also entered as a fixed factor because it is a categorical variable, while GPA was entered as a covariate as it is a continuous variable. Univariate model analyses were conducted to assess main effects rather than interaction effects for this reason.

After controlling for the influence of the covariates, there was no statistically significant difference in sense of belonging between GI and GE groups: $F (1, 86) = 2.204$, $p = 0.141$. Tables 16, 17, and 18 present a summary of these results.
**Table 16**

*ANCOVA Group Means*

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>GI</td>
<td>24.1892</td>
<td>3.77740</td>
<td>37</td>
</tr>
<tr>
<td>GE</td>
<td>23.4912</td>
<td>5.40213</td>
<td>57</td>
</tr>
<tr>
<td>Total</td>
<td>23.7660</td>
<td>4.81803</td>
<td>94</td>
</tr>
</tbody>
</table>

**Table 17**

*ANCOVA Estimated Marginal Means*

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>GI</td>
<td>24.725a</td>
<td>.978</td>
<td>22.781</td>
</tr>
<tr>
<td>GE</td>
<td>23.287a</td>
<td>.817</td>
<td>21.662</td>
</tr>
</tbody>
</table>

a. Covariates appearing in the model are evaluated at the following values: What is your cumulative college GPA? = 8.07.

**Table 18**

*ANCOVA Tests of Between-Subjects Effects*

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
<th>Observed Powerb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>480.886a</td>
<td>7</td>
<td>68.698</td>
<td>3.521</td>
<td>.002</td>
<td>.223</td>
<td>.958</td>
</tr>
<tr>
<td>Intercept</td>
<td>531.969</td>
<td>1</td>
<td>531.969</td>
<td>27.265</td>
<td>.000</td>
<td>.241</td>
<td>.999</td>
</tr>
<tr>
<td>Group</td>
<td>42.994</td>
<td>1</td>
<td>42.994</td>
<td>2.204</td>
<td>.141</td>
<td>.025</td>
<td>.312</td>
</tr>
<tr>
<td>Race</td>
<td>299.139</td>
<td>5</td>
<td>59.828</td>
<td>3.066</td>
<td>.014</td>
<td>.151</td>
<td>.850</td>
</tr>
<tr>
<td>GPA</td>
<td>116.122</td>
<td>1</td>
<td>116.122</td>
<td>5.952</td>
<td>.017</td>
<td>.065</td>
<td>.674</td>
</tr>
<tr>
<td>Error</td>
<td>1677.965</td>
<td>86</td>
<td>19.511</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>55252.000</td>
<td>94</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>2158.851</td>
<td>93</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. R Squared = .223 (Adjusted R Squared = .159)
b. Computed using alpha = .05
While results were not statistically significant between the two groups when controlling for both covariates (race and GPA), it is worth noting that both race ($p = 0.014$) and GPA ($p = 0.017$) were significantly related statistically to respondents’ sense of belonging. In fact, race has a large effect size of $\eta^2_p = 0.151$, while GPA has a medium effect size of $\eta^2_p = 0.065$ (Cohen, 1988). Results suggest that race may account for approximately 15% of the variance in belonging, and GPA may account for approximately 6.5% of the same. Taken together, these two variables may potentially account for over one-fifth of explained variance in sense of belonging. Observed power was also much stronger with the variables of race and GPA (0.850 and 0.674 respectively) than it was with the independent variable (GI/GE group: 0.312).

Post hoc comparisons using the Tukey HSD test revealed that the mean score for Asian students ($M = 20.29, SD = 6.23$) was significantly different from White students ($M = 25.04, SD = 4.15$). No other group comparisons by race were statistically significant. Additionally, students with higher GPAs reported a stronger sense of belonging than did students with lower GPAs. While post hoc tests cannot be conducted on this covariate, a comparison of mean scores on the dependent variable by each GPA level, presented in Table 19, confirms that students with higher GPAs generally reported a stronger sense of belonging than did students with lower GPAs.

**Results for Hypothesis #2**

The second hypothesis posits that students living in the GI group are more likely to identify as gay, lesbian, or bisexual than are students in the GE group. A chi-square test for independence was performed to investigate the relationship between sexual orientation and membership in one of the two housing groups. Chi-square assumptions
Table 19

*Sense of Belonging Mean Scores by GPA Levels*

<table>
<thead>
<tr>
<th>What is your cumulative college GPA?</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00 - 2.32</td>
<td>23.500</td>
<td>2</td>
<td>3.53553</td>
</tr>
<tr>
<td>2.33 - 2.65</td>
<td>19.889</td>
<td>9</td>
<td>5.88312</td>
</tr>
<tr>
<td>2.66 - 2.99</td>
<td>23.368</td>
<td>19</td>
<td>5.31466</td>
</tr>
<tr>
<td>3.00 - 3.32</td>
<td>23.516</td>
<td>31</td>
<td>5.12426</td>
</tr>
<tr>
<td>3.33 - 3.65</td>
<td>25.058</td>
<td>17</td>
<td>2.83881</td>
</tr>
<tr>
<td>3.66 - 3.99</td>
<td>25.800</td>
<td>15</td>
<td>3.87667</td>
</tr>
<tr>
<td>4.00 or higher</td>
<td>22.000</td>
<td>1</td>
<td>.</td>
</tr>
<tr>
<td>Total</td>
<td>23.766</td>
<td>94</td>
<td>4.81803</td>
</tr>
</tbody>
</table>

require independence of observations, meaning that each observed frequency is generated by a different participant. Additionally, the expected frequency within each cell should be at least five, as low frequencies can have a distorted degree of influence on the chi-square value (Gravettier & Wallnau, 2000). Because the low frequency of responses to some sexual orientation categories in the results would cause a violation of this assumption, responses to the sexual orientation item were pooled into two categories: “Heterosexual” and “LGB,” for lesbian, gay, and bisexual identities. In doing so, all crosstabulation cells contain at least five frequencies. Table 20 presents the results of this analysis.

The chi-square test for independence, calculated using Yates Continuity Correction to compensate for an overestimation of the chi-square value in 2 by 2 tables (Yates, 1934), reveals no statistically significant relationship between sexual orientation and GI/GE group membership, \( \chi^2 (1, n = 94) = 0.000, p = 0.995, \phi = 0.031 \). In other words, respondents were just as likely to live in GI and GE campus housing regardless of their sexual orientation. Table 21 presents the results of the chi-square test for
Table 20

Chi-Square Pooled Sexual Orientation Crosstabulation

<table>
<thead>
<tr>
<th>Group</th>
<th>Count</th>
<th>PooledOrientation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Heterosexual</td>
</tr>
<tr>
<td>GI</td>
<td>32</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>86.5%</td>
<td>13.5%</td>
</tr>
<tr>
<td></td>
<td>40.0%</td>
<td>35.7%</td>
</tr>
<tr>
<td></td>
<td>34.0%</td>
<td>5.3%</td>
</tr>
<tr>
<td>GE</td>
<td>48</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>84.2%</td>
<td>15.8%</td>
</tr>
<tr>
<td></td>
<td>60.0%</td>
<td>64.3%</td>
</tr>
<tr>
<td></td>
<td>51.1%</td>
<td>9.6%</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>85.1%</td>
<td>14.9%</td>
</tr>
<tr>
<td></td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>85.1%</td>
<td>14.9%</td>
</tr>
</tbody>
</table>

independence comparing sexual orientation with GI/GE group membership. The phi coefficient measuring the effect size, as shown in Table 22, is merely 0.031, which is below Cohen’s (1988) criteria of 0.10 in order to be considered a small effect.

Results for Hypothesis #3

The third hypothesis posits that students living in GI campus housing units are more likely to identify as transgender or queer than are students living in GE campus housing units. A chi-square test for independence was performed to investigate the relationship between gender identity and membership in one of the two housing groups. The crosstabulation table reveals that there were no respondents in either the GI or GE group who identified as “transgender,” and only one respondent who identified as “varying/queer” in each group (n = 2). All other respondents identified as “male” or
To examine the possibility that some transgender students may not identify as transgender, but only as the gender designation they now embrace, data were examined to look for any differences between respondents whose gender identity differs from their self-identified birth sex category. The only differences present were for the two respondents who currently identify as “varying/queer,” with all other respondents identifying as cisgender. Given the requirement to have at least 5 frequencies in each cell, there were not enough respondents who identify as transgender or varying/queer to
include them in a chi-square analysis. Table 23 presents the results of the chi-square test comparing gender identity with GI/GE group membership.

Table 23

Chi-Square Gender Identity Crosstabulation 1

<table>
<thead>
<tr>
<th>Group</th>
<th>GI</th>
<th>Count</th>
<th>Do you consider your gender identity to be:</th>
<th>Male</th>
<th>Female</th>
<th>Varying/Queer</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>% within Group</td>
<td>51.4%</td>
<td>45.9%</td>
<td>2.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>% within Do you consider your gender identity to be:</td>
<td>57.6%</td>
<td>28.8%</td>
<td>50.0%</td>
<td>39.4%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>% of Total</td>
<td>20.2%</td>
<td>18.1%</td>
<td>1.1%</td>
<td>39.4%</td>
</tr>
<tr>
<td>GE</td>
<td></td>
<td>14</td>
<td></td>
<td>24.6%</td>
<td>73.7%</td>
<td>1.8%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>% within Group</td>
<td>42.4%</td>
<td>71.2%</td>
<td>50.0%</td>
<td>60.6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>% within Do you consider your gender identity to be:</td>
<td>14.9%</td>
<td>44.7%</td>
<td>1.1%</td>
<td>60.6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>% of Total</td>
<td>35.1%</td>
<td>62.8%</td>
<td>2.1%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>33</td>
<td></td>
<td>35.1%</td>
<td>62.8%</td>
<td>2.1%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

There was, however, a statistically significant difference in the number respondents who identified as male and female between the two groups. Table 24 presents the crosstabulation frequencies after removing those identifying as “varying/queer” from the analysis.
### Table 24

**Chi-Square Gender Identity Crosstabulation 2**

<table>
<thead>
<tr>
<th>Group</th>
<th>Do you consider your gender identity to be:</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>GI</td>
<td>% within Group</td>
<td>52.8%</td>
<td>47.2%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% within Do you consider your gender identity to be:</td>
<td>57.6%</td>
<td>28.8%</td>
<td>39.1%</td>
</tr>
<tr>
<td></td>
<td>% of Total</td>
<td>20.7%</td>
<td>18.5%</td>
<td>39.1%</td>
</tr>
<tr>
<td>GE</td>
<td>% within Group</td>
<td>25.0%</td>
<td>75.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% within Do you consider your gender identity to be:</td>
<td>42.4%</td>
<td>71.2%</td>
<td>60.9%</td>
</tr>
<tr>
<td></td>
<td>% of Total</td>
<td>15.2%</td>
<td>45.7%</td>
<td>60.9%</td>
</tr>
<tr>
<td>Total</td>
<td>% within Group</td>
<td>35.9%</td>
<td>64.1%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% within Do you consider your gender identity to be:</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% of Total</td>
<td>35.9%</td>
<td>64.1%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Results show that more respondents in the overall sample identify as female than as male by almost a 2-to-1 ratio across the two groups. Yet when looking at frequencies between the two groups, there is an inverse representation. In the GI group, slightly more than half of the respondents identify as male, while in the GE group, three-quarters of the respondents identify as female. As presented in Tables 25 and 26, the chi-square test for independence indicated a statistically significant association between gender and GI/GE group membership, $\chi^2 (1, n = 92) = 6.192, p = 0.013, \phi = 0.283$. Results indicate that
among the analytic sample, males are more likely to live in GI campus housing units than are females, and females are more likely to live in GE campus housing units than are males.

**Table 25**

*Chi-Square Gender Identity Test for Significance*

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymptotic Significance (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>7.350a</td>
<td>1</td>
<td>.007</td>
</tr>
<tr>
<td>Continuity Correctionb</td>
<td>6.192</td>
<td>1</td>
<td>.013</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>7.313</td>
<td>1</td>
<td>.007</td>
</tr>
<tr>
<td>Fisher's Exact Test</td>
<td>7.313</td>
<td>1</td>
<td>.007</td>
</tr>
<tr>
<td>Linear-by-Linear</td>
<td>7.270</td>
<td>1</td>
<td>.007</td>
</tr>
<tr>
<td>Association</td>
<td>N of Valid Cases</td>
<td>92</td>
<td></td>
</tr>
</tbody>
</table>

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 12.91.
b. Computed only for a 2x2 table

**Table 26**

*Chi-Square Gender Identity Phi Coefficient*

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Approximate Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal by Nominal Phi</td>
<td>.283</td>
<td>.007</td>
</tr>
<tr>
<td>Cramer's V</td>
<td>.283</td>
<td>.007</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>92</td>
<td></td>
</tr>
</tbody>
</table>

Given the results of these tests, there was no evidence to support all three research hypotheses, and thus, the null hypothesis could not be rejected. There was no statistically significant difference in sense of belonging between students who live in GI campus housing and those who live in GE campus housing, although findings emerged that indicate that race and academic achievement have a statistically significant relationship.
with sense of belonging. Additionally, respondents were just as likely to live in GI and GE campus housing regardless of their sexual orientation. Finally, while there were not enough participants in the study who identified as transgender or varying/queer to answer hypothesis #3, there was a statistically significant difference in terms of other gender identities with more males than females living in GI campus housing.
Chapter 5: Discussion

Recall that the purpose of this study was to examine the relationship between students’ housing unit type and their sense of belonging. The specific hypothesis posed was that students in gender-inclusive (GI) campus housing units would report a stronger sense of belonging than do students in gender-exclusive (GE) campus housing units. Analysis of covariance (ANCOVA) was employed to test for difference in belongingness among the GI and GE groups, controlling for race, gender identity, sexual orientation, and cumulative college grade point average (GPA). Results demonstrated that there was no statistically significant relationship between participants’ campus housing unit type and their sense of belonging. However, race and GPA did emerge as having a statistically significant relationship with students’ sense of belonging, regardless of the campus housing group to which they belonged.

The second research question in this study examined the relationship between students’ campus housing unit type and their sexual orientations. The hypothesis that was tested stated that students living in GI campus housing were more likely to identify as lesbian, gay, or bisexual than were students living in GE campus housing. Chi-square test for independence was used to test the hypothesis. There was no statistically
significant difference in the sexual orientations of students living in GI versus GE campus housing.

The third research question considered the relationship between students’ campus housing unit type and their gender identities. The hypothesis for this question stated that students in GI campus housing were more likely to identify as transgender or varying/queer than were students living in GE campus housing. While a test for significance among transgender or varying/queer students was not possible, there was a statistically significant difference between the groups with regard to male/female identities. More males were likely to live in GI campus housing units, while more females were likely to live in GE campus housing units.

While the study’s findings are not all statistically significant for the specific research questions at hand, there are notable results to highlight. Students who live in GI campus housing units report the same degree of belongingness as students in GE campus housing units, suggesting that GI campus housing environments may not have a direct effect on students’ perceptions of their campus climate or on their sense of “fit” on campus. Additionally, students were just as likely to live in GI and GE campus housing options regardless of their sexual orientation. This may trouble the conventional assumption that students who choose to live in GI campus housing units are usually members of the LGBTQ community who are seeking a safer or more welcoming housing environment (Anderson, 2011; Beemyn, 2003; Bleiberg, 2004; Campbell, 2012; Chave, 2014; Negrete, 2008; Oliver & Magura, 2011). At this institution, the vast majority of students living in GI campus housing units identified as heterosexual or straight, and LGBTQ students were just as likely to live in both GI and GE campus housing units.
This may be an effect of a campus climate at this institution that could be more welcoming of LGBTQ students than may be the case at other institutions, and therefore LGBTQ students may not need the “safe harbor” that GI campus housing units can provide them on more hostile campuses.

Also worth noting is that race and cumulative GPA, used as control variables in the ANCOVA, both emerged as statistically significant in assessing group differences in sense of belonging. Specifically, the present study revealed that Asian students report a lower sense of belonging than do White students, as do students who have lower levels of academic achievement than do their peers, as measured by GPA.

**Relationship of Findings to Prior Research and Scholarship**

As stated in Chapter Two, there are no previous empirical studies to date pertaining to the experiences of students living in gender-inclusive housing units, or the outcomes that may result from such housing practices. There are, however, numerous studies pertaining to students’ sense of belonging that have relevancy to the findings of this study.

Strange and Banning (2001) asserted that physical environments on college campuses serve both functional and symbolic purposes. These spaces support and encourage certain activities, but also convey important messages and values. In this study, students living in GI campus housing units did not report a statistically different sense of belonging than those living in GE units, but it is worth considering if the mere availability of GI campus housing conveys impactful messages of support and commitment to diverse students, thereby potentially heightening their sense of belonging, whether or not they actually choose to live there.
Prior research has demonstrated that themed housing or living-learning residential programs have significantly positive impacts on student outcomes (Blimling, 2015; Schussler & Fierros, 2008). Blimling (2015) posited that themed residential groupings, like gender-inclusive housing, can increase students’ level of engagement between residents, thereby strengthening their assimilation and group identification. He stated that gender-inclusive housing provides a safe environment that buffers occupants’ encounters with discrimination or judgment, thereby leading to greater satisfaction and stronger relationships. Given this assumption, one would have expected participants in this study who live in GI campus housing units to report a higher degree of belongingness, but they did not do so at a statistically significant level. Similarly, Schussler and Fierros’s (2008) findings revealed positive outcomes, like sense of belonging, that are associated with learning communities. Because the GI campus housing program at this institution is not intended to be a true living-learning community, where residents both live in proximity together and take at least one similar class together, the positive outcomes associated with high-impact living-learning communities that Schussler and Fierros found in their research may not be realized with this institution’s program.

Furthermore, Blimling’s (2015) eight propositions that foster sense of belonging in campus residence halls are informative in light of these results. One of the propositions claimed that the closer students live in proximity to each other, the more likely it is they will develop meaningful friendships. Another asserted that the more homogenous the themed community, the more likely they are to develop friendships and community. The current structure of this institution’s GI housing initiative does not
house GI campus housing units in close proximity, thereby reducing the degree of homogeneity among those on a given floor, wing, or section who share the same values and interests as those who select GI campus housing units. One way to increase the outcomes of a GI housing program is to consider locating some or all GI-designated units in closer proximity to each other and to increase the amount of programming and other opportunities for engagement between GI students to further the development of a shared community.

Freeman, Anderman, and Jensen (2007) found in their study of first-year students that students’ sense of social acceptance by fellow students and faculty/staff members accounted for 35% of the variance in students’ sense of belonging. In this present study, survey items that assessed students’ perceived level of social acceptance were highly related to one’s sense of belonging as measured by the CSBS. Scale items related to social acceptance include “my friends would miss me if I left college,” “I feel valued and cared about at my college,” and “I believe I ‘fit in’ on this campus.”

Hausmann, Ye, Schofield, and Woods (2009) found in their study that students’ sense of belonging was related to positive educational outcomes such as GPA, satisfaction, commitment, and persistence. Strayhorn (2012) also found a relationship between sense of belonging and similar outcomes in his research. Consistent with prior studies, the present study provides evidence of the relationships between sense of belonging, race, and GPA. Students who are members of a minority racial group at this institution generally report lower levels of belongingness, as do students who have lower levels of academic achievement relative to their peers. Given the predominantly White racial composition of the student body, and the academic rigor of this institution, it seems
plausible that students who do not “fit the mold” in one or both of these areas would feel a greater threat to their sense of belonging than would White students or those who are achieving at higher levels academically.

Numerous researchers have found a significant relationship between students’ sense of belonging and racial identities (Hurtado & Carter, 1997; Museus & Maramba, 2011; Strayhorn, 2008, 2011d, 2012; Walton & Cohen, 2007, 2011). In general, they found that minority students’ sense of belonging is often more susceptible to hostility or to challenging campus climates. Results from the present study indicate that there is a statistically significant strong relationship between race and sense of belonging among participants, mostly among Asian students when compared to White students.

Chave (2014) and Oliver and Magura (2011) asserted that many students choosing GI campus housing options do not identify as a member of the LGBTQ community, but simply wish to live with friends or family without regard for their sex or gender identity. In contrast, Willoughby, Larsen, and Carroll (2012) did find a strong relationship between LGBTQ identities and those who occupy GI campus housing units. Results of this dissertation study found that students living in GI campus housing units at this participating institution were just as likely to identify as LGBTQ as they were to identify as heterosexual/straight. Additionally, while GI campus housing practices may have begun in response to the desire of some institutions to provide appropriate and safe housing options for transgender students (Anderson, 2011; Beemyn, 2003; Bleiberg, 2004; Campbell, 2012; Chave, 2014; Robison, 1998; Willoughby et al., 2012), this study does not indicate that transgender students are the primary occupants of GI campus housing units. Among the 94 participants in this study, none identified as transgender,
and the two who identified as varying/queer were split between the two housing unit groups. These results may reflect Krum, Davis, and Galupo’s (2013) finding that transgender and queer students prefer apartments or single rooms over GI-designated units. This may also suggest that this campus could have developed a sufficiently welcoming environment for transgender/queer students, and therefore they may not feel the need for a special GI campus housing option, or perhaps there are very few transgender/queer students at this institution overall.

Implications for Future Practice, Research, and Policy

The following are implications derived from the study’s results that have implications for future practice, research, and policy by campus practitioners, researchers, and key administrators.

Implications for Future Practice

The results from this study have important implications for residence life and other campus professionals. Cultural attitudes in the U.S. about gender roles, differences in sexual orientation and gender identities, and cohabitation between men and women have changed dramatically over time, and especially in the past decade. Students today have less tolerance for remaining vestiges of in loco parentis where institutions retain “parental” oversight of students’ conduct and choices, and holding fast to housing assignment policies that place gender-based limits on roommate pairings, when such policies are simply rooted in moral objections, are inconsistent with developments occurring in American culture.

Many who work in residence life roles assume that LGBTQ students would have a high degree of interest in living in GI campus housing units under the promise of a
more welcoming residential climate. At this institution, there were no students who identified as transgender living in these units, and the same number of students who identified as varying/queer were living in GI and GE campus housing units (one in each type). Additionally, lesbian, gay, and bisexual students were no more likely to live in GI campus housing than they were to live in GE campus housing. In fact, a higher percentage of heterosexual/straight students lived in GI campus housing than in GE campus housing. This reality may challenge assumptions some housing professionals have about who actually desires to live in GI campus housing units, which can inform facility designs, housing policies, and marketing approaches. As Bleiberg (2004) noted, platonic friendships among men and women provide developmental opportunities for students in such areas as enhanced social skills, appreciation of gender-related differences, and commitment to equality; as such, residential communities should encourage bonds between men and women in the same ways that they encourage bonds between same-sex individuals. Results from this study suggest that students who choose to live in GI campus housing environments may simply want to live with their friends who happen to be of a different gender identity. Residence halls were created, in part, to foster community among students, and those who feel they are an integral and welcomed member of a community have sense of belonging to it. To foster belongingness among students, campus residential policies should support the ways in which students choose to be in community together.

Additionally, given what was revealed in this study about the significant relationship between race and belongingness, campus practitioners would do well to think about ways to foster a stronger sense of belonging among students belonging to racial
minority groups, particularly Asian students who have been neglected in much of the research about student sense of belonging (Museus & Maramba, 2011), yet were identified in this study as having a lower sense of belonging compared to their peers. Many Asian students at U.S. campuses are international students and could experience marginalization not only because of their race, but also because of their citizenship status or language barriers. Unfortunately, the demographic information collected by the survey in this study did not include ethnic identity or citizenship status, and prior research has established that Asian student experiences, like those of students belonging to other racial groups, are not monolithic but can vary significantly based in part on ethnic identities (Museus & Maramba, 2011). Nonetheless, campus practitioners should increase their knowledge about racially and ethnically diverse students’ sense of belonging on their campus and consider additional support systems or programming efforts aimed at increasing sense of belonging among those students who report lower levels of belongingness.

In addition, students who are academically underperforming compared to their peers also reported a lower sense of belonging that was statistically significant. Hausmann et al. (2009) found that belongingness plays an intervening role in Tinto’s (1993) model of student departure between social integration and institutional commitment. These researchers also found that belongingness is related to academic achievement as measured by GPA. With Hausmann et al.’s findings in mind, poor academic achievement could foster an effect of academic or social isolationism, or low sense of belonging which can impact student persistence. Campus practitioners should consider that low sense of belonging may be a salient reality among students who are
academically underperforming relative to their peers, and intervention efforts should include intentional components to help sustain or increase their sense of belonging as a potential influencing factor on their eventual persistence at the institution.

A further area for examination pertains to whether the varying types of housing configurations lead to different results among students who live in gender-inclusive housing environments. Prior research has shown that room configurations and spacial design matter with regard to student satisfaction and developmental outcomes (Bondinuba, Nimako, & Karley, 2013; Centra, 1967; Owens, 2010; Spencer, 1984). Further study of housing space configurations in gender-inclusive environments may inform the decisions campus administrators make about which housing options are opened-up to gender-inclusive housing assignments, or how future buildings are designed to support those students desiring gender-inclusive options.

Finally, students themselves may also find value in these results. LGBTQ students who desire to live in GI campus housing units may benefit from knowing that the many (perhaps even most) students living in such units may likely be heterosexual/straight, assuming that campus policies do not limit these units to students based on certain sexual or gender identities. Additionally, heterosexual/straight and cisgender students may benefit from knowing that GI campus housing environments are also inclusive of their sexual orientations or gender identities.

Implications for Future Research

This study attempted to provide much-needed new knowledge about GI campus housing units and their relationship to student outcomes, namely sense of belonging in this case, using quantitative methods. Future studies could use a qualitative approach to
explore research questions that are difficult to address quantitatively. Such qualitatively-focused topics could include the meaning students derive from the availability of GI campus housing options on their campus, the reasons why they select or avoid such housing units, and their experiences living in them.

Though results from this study did not reveal a statistically significant relationship between GI campus housing units and sense of belonging, this was a cross-sectional research design that only measured students’ sense of belonging at a specific point in time. What cannot be determined from this study is whether students’ sense of belonging increased over time as a result of living in a GI unit, or the reasons why students chose to live in a GI unit versus a GE unit. If students were motivated to choose a GI unit out of a concern for their safety, for example, their sense of belonging could have been reported at a lower level had a GI campus housing option not been made available to them. From what is known about hierarchy of individual needs, students must first feel safe in their environments and have their physiological needs met first before they can fully develop a sense of belonging, and they must develop a sense of belonging before they can fully focus on higher order needs such as self-esteem and self-actualization (Maslow, 1954; Strayhorn, 2012). If GI campus housing environments help meet requisite safety needs for students so they can then turn their focus to their needs related to belonging, self-esteem, and self-actualization, then these settings become an important component of a campus system that more fully promotes student development and diversity inclusion.

Additional quantitative approaches will need to consider the difficulty in obtaining sufficient sample sizes to conduct robust statistical analyses. Many campuses that offer GI campus housing options have relatively few students living within them,
thereby creating a potential problem with using quantitative methods using a single participating institution. A multi-institutional study, while significantly more complicated, would provide many more participants to increase statistical power and alleviate other concerns such as normality of the data. Such a study would also allow for comparisons between institutional types.

As previously mentioned, sense of belonging was significantly lower statistically among students who were underachieving academically relative to their peers as measured by GPA. Hausmann et al. (2009) also found a relationship between sense of belonging and GPA, among other measures, leading to their conclusion that sense of belonging may have an intervening effect in Tinto’s (1993) Student Integration Model. The results from this study may support the notion that sense of belonging is influenced by academic achievement, and future research should explore the role that academic achievement plays in fostering or impeding students’ sense of belonging, and whether it may influence student persistence decisions.

Future studies should also further explore the implications of race and academic achievement on sense of belonging. These two constructs were used as covariates in the present study, but emerged as having a statistically significant relationship with students’ sense of belonging. More specifically, Asian students reported a lower sense of belonging than students in other racial categories, especially White students. Most of the existing literature pertaining to the relationship between race and college students’ sense of belonging has focused on African American or Latina/o students, while relatively few studies have focused on students with other racial identities or on international students in the U.S. (Museus & Maramba, 2011).
An additional area for future examination pertains to whether the varying types of housing configurations lead to different results among students who live in GI housing environments. Prior research has shown that room configurations and spacial design matter with regard to student satisfaction and developmental outcomes (Blimling, 1993b, 2015; Bondinuba et al., 2013; Centra, 1967; Owens, 2010; Spencer, 1984; Strange & Banning, 2001). Further study of housing space configurations in GI environments may inform the decisions campus administrators make about which housing options are opened-up to GI housing assignments, or how future buildings are designed to support those students desiring GI options.

Finally, more knowledge is needed regarding causal relationships between campus environments and students’ sense of belonging. Most of the existing literature has identified connections between components such as campus climates, physical spaces, campus housing practices, and sense of belonging, but has not often identified cause and effect dynamics that further illuminate the nature of the relationship between these components. For example, do theme campus housing environments cause a higher sense of belonging among occupants, or do students who have a higher sense of belonging in the first place tend to choose these housing options? With regard to the focus of this study, did students living in GI campus housing units start with a deficit in their sense of belonging that was elevated as a result of their experience living in a GI campus housing environment? More research is needed to be able to make such causal claims.
Implications for Future Policy

The findings from this study indicate that there are no statistically significant differences in sense of belonging between students living in GI campus housing units and students living in GE campus housing units. However, there are still important implications for those charged with developing and approving policies at an institutional level. Campus administrators responsible for setting housing assignment policies should understand that students of all sexual orientations and gender identities, not just LGBTQ students, desire to live in GI campus housing environments. Well-meaning policymakers may believe that by limiting GI units to LGBTQ populations, they are providing a safe zone for such individuals. These results, however, revealed no relationship between GI campus housing environments and sense of belonging among any students, including those in the LGBTQ community. Limiting GI campus housing to LGBTQ students may only serve to deny other students the opportunity to live on-campus with roommates of their choosing and of the benefits that may be gained by living within a diverse community.

Institutional policymakers who are considering changing policies to offer GI campus housing options may also benefit from these results. This study finds that GI campus housing environments do not have a negative or positive relationship with students’ sense of belonging. Rationale for providing GI campus housing options should be based on other intended goals, which may also be worthy pursuits to improve students’ experiences on campus or in residence halls.
Limitations of the Study

One limitation of this study pertains to sample size. While the response rate was generally adequate for both GI and GE campus housing groups (29% and 43% respectively), the overall $n$ for the sample was only 94 participants. This overall sample size was large enough to detect some differences in variance among respondents, but the sensitivity of the analysis was potentially hampered by low power in the ANCOVA. In addition, the response rate was different between GI and GE campus housing group members, and it is possible that those in GI campus housing who elected not to participate may differ in important ways from those who did participate, thereby changing the results. Also, normality of the data was slightly skewed in a positive direction, and a larger sample size may eliminate concerns about normality for data analysis purposes.

Additionally, this study was conducted at a highly selective private liberal arts campus in the Midwest where virtually all students live on campus for their entire course of study. Furthermore, the institution just recently expanded its GI campus housing option to sophomores and juniors, whereas it was limited to seniors in prior years. Results may be different at other campus types, at campuses where the diversity climate is different, or for campuses that have different GI campus housing practices or longevity in providing such housing options.

Conclusion

This study attempted to provide much-needed empirical research about GI campus housing practices, and to extend research on college students’ sense of belonging by examining its relationship to campus environments (namely residence halls). The
CSBS was developed for the purpose of this study, and administered via an online survey sent to students living in GI and GE campus housing units. Analysis of covariance (ANCOVA), controlling for race and GPA, was conducted to test for statistically significant differences in respondents’ sense of belonging, and chi-square analyses were conducted to test for statistically significant differences on the basis of sexual orientations and gender identities between the two groups. There was no statistically significant difference in sense of belonging between the two groups, but the ANCOVA revealed statistically significant differences in sense of belonging among students from different racial groups (specifically Asian and White students) and among students who have difference levels of academic achievement as measured by GPA. Additionally, while there were no statistically significant differences in sexual orientation between the groups, there was a statistically significant difference in gender identity with more males than females living in gender-inclusive campus housing units.

These results indicate that while GI campus housing environments may offer other important benefits to students, fostering a sense of belonging is unlikely to be one of them. Additionally, students who identify as male or heterosexual/straight are more likely to choose to live in GI campus housing units than are students with differing identities, which may disrupt conventional thinking about the types of students for whom GI campus housing units are intended.

Sense of belonging is a universal and powerful motivator that has a profound influence on both behavior and dispositions (Strayhorn, 2012). While college students’ sense of belonging is a growing area of research and focus of practice, much is still unknown about how sense of belonging is developed differently among varying types of
students, or about the practices that foster or diminish students’ sense of belonging. Furthermore, there is a scant amount of literature pertaining to the relationship between sense of belonging and physical environments on college campuses, such as residence halls, student centers, classrooms, cultural centers, etc. These are locations on campus where students can spend significant amounts of their time. They should be spaces that communicate messages of mattering and belonging, and designed in ways that foster social connections and respect for varying identities to ensure all students believe that they belong in those spaces and among others who use them. This study attempted to further this dialogue by examining whether GI campus housing spaces have a relationship with students’ sense of belonging. While the results did not reveal an association between them, this study is hopefully a start in developing a body of knowledge pertaining to student outcomes derived from GI campus housing practices.
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Appendix: Housing Environments and Belongingness Survey (HEBS)

Section 1: Demographic Information

1. What is your current classification level?
   a. Freshman
   b. Sophomore
   c. Junior
   d. Senior

2. Did you transfer to this institution from another institution?
   a. Yes, in this current academic year
   b. Yes, in a prior academic year
   c. No

3. Do you consider your race/ethnicity to be:
   a. American Indian/Alaska Native
   b. Asian
   c. Black or African American
   d. Hispanic or Latino
   e. Native Hawaiian or Other Pacific Islander
   f. White
   g. Multiracial
   h. Other

4. What is your age?
   a. 18 or under
   b. 19
   c. 20
   d. 21
   e. 22
   f. 23
   g. 24
   h. 25 or older
5. What is your cumulative college GPA?
   a. 1.00 or lower
   b. 1.01-1.32
   c. 1.33-1.65
   d. 1.66-1.99
   e. 2.00-2.32
   f. 2.33-2.65
   g. 2.66-2.99
   h. 3.00-3.32
   i. 3.33-3.65
   j. 3.66-3.99
   k. 4.00 or higher

6. What was your high school cumulative GPA?
   a. 1.00 or lower
   b. 1.01-1.32
   c. 1.33-1.65
   d. 1.66-1.99
   e. 2.00-2.32
   f. 2.33-2.65
   g. 2.66-2.99
   h. 3.00-3.32
   i. 3.33-3.65
   j. 3.66-3.99
   k. 4.00 or higher
   l. Do not remember

7. Do you consider your birth sex category to be:
   a. Male
   b. Female

8. Do you consider your current gender identity to be:
   a. Male
   b. Female
   c. Transgender
   d. Varying/Queer

9. Do you consider your sexual identity to be:
   a. Heterosexual or straight
   b. Gay or lesbian
   c. Bisexual
   d. Other

10. Which type of room are you residing in this current year?
    a. One bedroom (single or shared) with a floor community bathroom
    b. One bedroom (single or shared) with a private bathroom
c. Two or more bedrooms in a suite with a bathroom, but no living room or kitchen
d. Two or more bedrooms in a suite with a bathroom and living room, but no kitchen
e. Apartment containing bedroom(s), bathroom(s), living room, and kitchen in same unit 
f. Other

11. How many people are assigned to live in your same bedroom?
   a. One (just you)
   b. Two
   c. Three
   d. Four or more

12. How did you choose your roommate(s)?
   a. Do not have any roommates
   b. I chose all of my roommates
   c. I chose some but not all of my roommates
   d. I chose none of my roommates

13. Do you live in a “gender-inclusive” or “open housing” room where students from the varying gender identities live in the same room, suite, or apartment?
   a. Yes
   b. No
   c. Not sure

14. How many semesters have you lived in campus housing, including this current term?
   a. 1 to 2 semesters
   b. 3 to 4 semesters
   c. 5 to 6 semesters
   d. 7 to 8 semesters
   e. 9 to 10 semesters
   f. More than 10 semesters

Section 2: Sense of Belonging Indicators

15. To what extent do you agree with the following statements? (Response options: Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree):
   a. I feel a sense of belonging at my college
   b. I would choose this college again, if I had it to do over
   c. My friends would miss me if I left college
   d. I feel valued and cared about at my college
   e. I am satisfied with my on-campus housing experience this year
   f. Other students in my residence hall care about me
g. I believe I “fit in” on this campus
h. I am satisfied with my overall experience on this campus

16. If given a choice, to what degree do you intend to return to this college/university for the next academic term (Mark Not Applicable if graduating or will be studying abroad)?
   a. Definitely will not
   b. May not
   c. Not sure
   d. Likely will
   e. Definitely will
   f. Not Applicable