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Relationship Between Residence Hall Floor Plan And Social Interaction, Community, Retention, And Overall Satisfaction

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Eastern Illinois University

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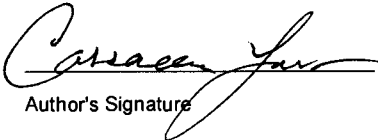
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The Relationship Between Residence Hall Floor Plan and Social
Interaction, Community, Retention, and Overall Satisfaction

(TITLE)

BY

Cassandra James

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
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IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
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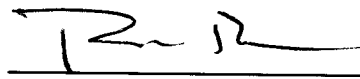
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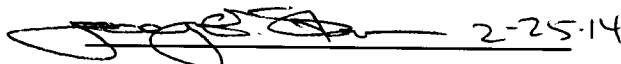
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Abstract

This quantitative study focused on the relationship between residence hall floor plan types and quality of social interaction, social interaction among students, sense of community, retention, and overall level of perceived satisfaction of students at a mid-sized, Midwest institution. The 31 item survey was administered to on-campus students living in the residence halls to better understand the relationship between floor plan types and social interaction. The results provided a significant difference with two floor plan types for interaction among students. The findings of the present study suggest that university administrators focus on designing and renovating residence hall floor plan types to enhance social interaction and that further research be done on this topic with regards to social interaction influences.

Dedication

This thesis is dedicated to the three biggest supporters that stood by me through this entire process, Aaron, Mom, and Dad. I love all three of you unconditionally and would not have had the passion and drive to do this if it weren't for all of you. You have all influenced my life in different ways and helped me to become the person I am today. For that I thank you, I am so blessed to have you in my life.

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Last but not least, I want to thank God for providing me with the wisdom, capability, and determination needed to complete this thesis. He has blessed me with an amazing support system and to that I am forever grateful.

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CHAPTER I

Introduction

When the physical environment of a campus or building supports the desired behavior of students, a better outcome will result (Strange & Banning, 2001).

Universities are built environments that have great potential for influencing student activities and shaping experiences (Heimstra & McFarling, 1974). Although the natural environment can be beneficial to human wellbeing, people spend more than 90% of their lives within buildings (Evans & McCoy, 1988). The majority of time spent within buildings on a college campus is in the residence halls where students sleep, eat, interact and develop. With college students spending around 70% of their time in their residence halls, enhancing that living experience promotes student satisfaction (Brandon, Hirt & Cameron, 2008). Therefore, it is important to create a residential space that allows maximum developmental opportunities for college students.

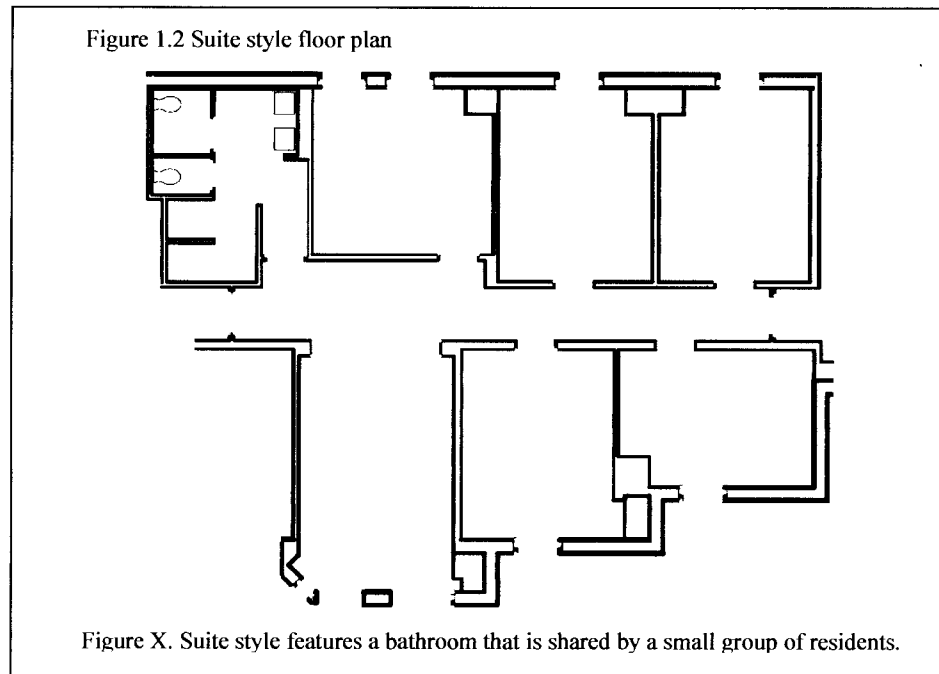
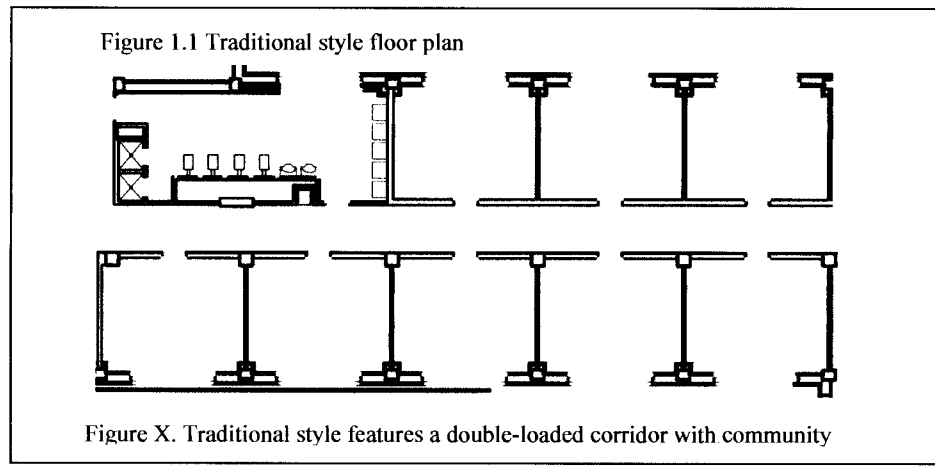
Living in the residence halls is an important developmental experience for college students and positively impacts their education. Living in a residence hall enhances social interaction opportunities, creates more interpersonal contacts with faculty and other students, increases social competence, and leads to more satisfaction with college (Astin 1973; Astin, 1977; Moos & Lee, 1979; Nowack & Hanson, 1985; Simono, Wachowiak, & Furr, 1984). Students living in on-campus residence halls receive academic benefits, are less likely to drop out, have higher grades, and are more likely to receive their degree in four years than do commuting students (Astin, 1977; Paine, 2007; Pascarella & Terenzini, 1994).

College students spend much of their time outside of the classroom and that time has been linked to a student's development and learning. For example, involvement outside of the classroom is linked with persistence and retention (Arboleda, Wang, Shelley, & Whalen, 2003; Astin, 1977, 1999; Pascarella, Terenzini, & Blimling, 1994; Tinto 1993; Vasquez, 2006). The student's place of residence was found in one study to be the most important environmental influence on the student's persistence in school (Astin, 1999).

Living on campus has been a part of students' college experience since the earliest days of higher education in the English colonies (Rudolph, 1990). In the 1950s and 1960s, housing on campuses grew at a rapid rate and dormitories expanded across the nation (Paine, 2007; Schroeder & Marble, 1994). By the 1970's the nature of the dormitory began to change and staff members referred to the buildings as "residence halls". The word "dormitory" was a term used to describe a place to eat and sleep, whereas "residence hall" describes an educationally rich living environment for students (Frederiksen, 1993; Pain, 2007).

Residence hall design varies across campuses in the United States. University administrators and architects determine what design type of residence halls should be built on their campus to promote student success. Residence halls can be classified into two main types, traditional style and suite style. Traditional style residence halls (see Figure 1.1) typically have double-loaded corridors, community bathrooms and double occupancy rooms (Paine, 2007). Suite style halls (see Figure 1.2) typically have two to six students that share double occupancy bedrooms and a bathroom which is located

between the rooms (Paine, 2007). Suite style and traditional style housing allows different options for students when finding a living situation that best suits them.



By creating residence halls that satisfy the needs of students, both academic yield and retention is supported. Creating residence halls to fit the needs of students is an important task for universities. Moore (2012) stated that 51% of all student respondents indicated that the quality of on-campus housing is a determining factor in their decision to attend an institution. The first semester of students' college career has been noted to be

crucial to their success at the university (Levitz & Noel, 1989; Pascarella & Terenzini, 1991; Tinto, 1993; Upcraft & Gardner, 1989). The quality of life to be had within residence halls has a big impact on students during their first semester, so it is important to focus on student satisfaction and which type of residence hall most satisfies the students who live in them.

The quality of residence halls is a determining factor for choosing an institution, and universities are competing for students. Administrators continue to focus on meeting increasing student expectations with campus housing (Delvin, Donovan, Nicolov, Nold, Zandan, 2008). In order to meet those expectations, college administrators are providing more amenities and opportunities to students living in the residence halls. Recently colleges have been designing new residence halls, updating existing residence halls, and creating living learning environments to attract and encourage students to live on campus (Angelo & Rivard, 2003; Rutledge, 2012). Therefore, it is important that the universities make strides to enhance this experience for their residents by providing housing facilities that will increase student satisfaction.

Satisfaction with community and the ability to know your neighbors' names are predictors of a sense of community (Glynn, 1981; McMillan & Chavis, 1986). Residence halls provide that sense of community through social spaces along corridors to give students the opportunity to interact with one another (Delvin et al., 2008). Few other environments at a university influence the behaviors of college students as much as the residence hall setting (Pascarella & Terenzini, 1982). Students have some of their first interactions with other students such as their roommate, Resident Assistant, and other residents living on their floor. When students have a chance to interact with one another,

the college experience is enhanced and facilitates higher satisfaction with the collegiate experience.

Research has suggested that one of the most important factors in predicting overall satisfaction in the residence halls is the ability of students to interact with one another (Educational Benchmarking Inc., 2002; Li, Sheely, & Whalen, 2005). Many of the gains associated with living on campus have been thought to come from high interaction and community building from residence hall living (Astin 1975; Blimling 1993; Stodt, 1987). If the desired behavior of students is to interact with others, resulting in increased levels of involvement and student interaction, then it may seem counter-productive to create residence hall environments that promote less interaction and more privacy for students (Strange & Banning, 2001). Residence halls provide sociability and community opportunities and tend to be expressed as the goal of housing students on a residential basis (Heilweil, 1973). If that goal is not met, students may feel lonely or unsatisfied with their college experience. Davis and Roizen (1970) found that the best predictor of overall student satisfaction was residence hall type.

In the present study, the design of residence halls and their relationship with social interaction among students will be analyzed by studying different types of residence hall designs and surveying students on their satisfaction with how the physical building design affects the quality of their interactions.

Purpose of the Study

The purpose of this study was to investigate the relationship between students living in different types of residence halls and their quality of interaction, interaction among students, sense of community, retention, and overall satisfaction at a mid-sized

Midwestern University. This study assisted in providing data of residence hall floor plan type relationships. The findings of this study may help University Housing and Dining administrators to understand the role that floor plan type has in the residence hall community and assist in future decisions about remodeling or designing residence halls on campus.

Research Questions

To further understand architectural design and its relation to social interactions among students living in different types of residence halls, this study sought to answer the following questions:

1. Is there a relationship between a student's floor plan type and the quality of social interaction?
2. Is there a relationship between the floor plan type and social interaction among the students on the floors?
3. Is there a relationship between floor plan type and sense of community on the floor?
4. Is there a relationship between floor type and retention?
5. Is there a relationship with floor plan type and overall level of perceived satisfaction?

Hypothesis

The first hypothesis was that residents the traditional style floor type will have a positive relationship through social interaction more than those who live in suite style floor plan types (residence floor plan type E, Figure 3.5). The second hypothesis was that traditional style floor plans that have a lower square footage of hallway circulation

(residence floor plan type B, Figure 3.2, and type C, Figure 3.3) will have a higher social interaction than traditional style residence halls that have divided circulation in long halls (residence floor plan type A, Figure 3.1). The third hypothesis was that traditional style floor plan types would have a greater sense of community than suite style floor plan types (floor plan type E). The fifth hypothesis was that there will be a relationship between floor type and retention. The fifth hypothesis was that the suite style residence hall floor plan type will have a higher overall perceived level of satisfaction than traditional style floor plan types.

Significance of the Study

In order to plan for the future construction of university residence halls, it is important to determine if a particular residence hall architectural floor plan design promotes community building with healthy social interactions. If a particular building type promotes University Housing's goal of creating a sense of community for students within the halls, then this research would help aid future decisions in construction or renovating residence halls to satisfy student needs and opportunities for development. Little research has been done on architectural design as it relates to quality of social interaction, social interaction among students, sense of community, retention, and overall perceived level of satisfaction. Some research has been done on these variables as an individual relating to residence hall type, but not as a combination (Brandon, 2007; Davis, 1970; Delvin et al. 2008; Paine, 2007). Also, there have been very limited new studies on the topic and much of the literature review of research is dated.

Limitations of the Study

The present study was intended to perform research on a Midwestern, public university by using convenience sampling. The study was not tested for validity or reliability before the surveys were distributed. Another limitation was that the study was designed required a significant response rate from participants on individual floors. Participants' answers to the study were also subjective and if the study were repeated on a different campus it could produce different results. Another limitation was that the study does not include the effects of social media and the influence of technology on students' social interaction.

Definition of Terms

The following are a list of definitions of terms and concepts important to understanding the study.

Cluster Style. Residence halls that have small groups of rooms that share a common corridor and a common bathroom are considered cluster style room types (Delvin et al., 2008). This includes pods or semi-private bathrooms.

Corridor Style. Residence halls that have rooms arranged along the perimeter of a single-loaded corridor are considered corridor style room types (Delvin et al., 2008).

Dorm. An on campus living facility that is viewed as a place to eat and sleep only is considered a dorm (Brandon et al., 2008).

Residence Hall. An on campus living facility that is viewed as a place to reside is considered a residence hall (Brandon et al., 2008).

Sense of Community. "A feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs

will be met through their commitment to be together" is considered sense of community (McMillan, 1976, p. 86)

Social Interaction. The relationship between residents that can be on levels ranging from participating in activities together, having conversations with one another, and spending time with one another is considered social interaction.

Suite Style. Residence halls that have two to six students that share double occupancy bedrooms and a bathroom located between the rooms are considered suite style room types (Paine, 2007). Some suite style room types also include living rooms or kitchens.

Traditional Style. Residence halls that have double-loaded corridors, community bathrooms, and double occupancy rooms are considered traditional style room types (Paine, 2007).

Summary

Research was conducted to further understand the relationship between the floor design of residence halls and the relationship between social interaction, sense of community, retention, and overall satisfaction. Reviewed literature and a proposed study were developed in order to provide an understanding of the importance of social interaction in the residence hall, how it relates to the floor plan design, and how floor plan design can assist in improving student social interactions. Chapter two examined literature that has been established in regard to residence hall floor plan types, social interaction, and student satisfaction. The quantitative research methodology for this study is displayed in Chapter three. Chapter four provides results for the present study and Chapter five discusses the conclusion and recommendations for the future.

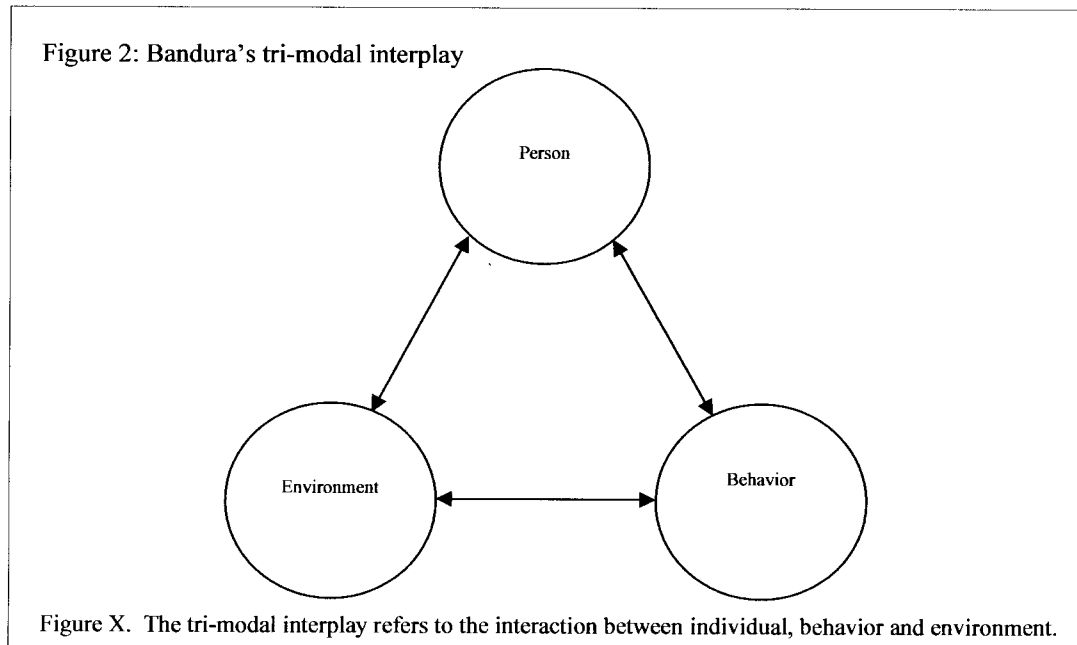
CHAPTER II

Review of Literature

A literature review was conducted to explore the relationship of residence hall floor plan design and social interaction among the residents. Subject headings are presented as follows in Chapter 2: theory, residence halls, social interaction and residence halls, and sense of community and residence halls.

Theory

Environment affects the actions and reactions of a person in social situations and influences the way people interact with one another (Lewin, 1936). This statement was made nearly eighty years ago and is the basis for much of Bandura's subsequent work in social cognitive theory (Bandura, 2001). Bandura argued that people are producers as well as products of their environment (Bandura, 1989). He believed that we are reactive organisms that have the ability to alter our environment and behavior. Bandura proposed a tri-modal interplay between the individual, behavior and the environment (Figure 2, Bandura, 1986). In this "triadic reciprocal causation model" (Bandura, 2001, p. 14) behavior, the individual which can be defined as cognition and other personal factors, and environmental influences all operate as interacting determinants that influence each other bidirectionally (Bandura, 1986). Reciprocal causation between the tri-model elements are at different strengths at different times and do not occur simultaneously (Bandura, 1989). In the present study, *environment* was defined as the residence hall, *person* are the participants of the survey, and *behavior* are the scaled scores representing the independent variables (quality of social interaction, social interaction among students, sense of community, retention, and overall level of perceived satisfaction).



The person and behavior reciprocal causation reflects the interaction between thought, affect, and action (Bandura, 1989). Behavior is impacted by factors such as the individual's expectations and goals. What individuals think, believe, and feel effect how they will behave (Bandura, 1986). In relation to students living in the residence halls, an expectation of that individual may be to meet a lot of people and make friends. Based on this expectation and goal, the resident may go to programs, get involved with a club or go door-to-door meeting people because of the goal to make friends. This behavior would not have happened if the resident did not have the expectation that college is a place to make friends. Similarly, behavior is also impacted by the person. If a resident has an introverted personality, he/she may prefer isolation which in turn affects how the individual goes about interacting and making friends on his/her floor.

The environment and person reciprocal causation is focused on the interactive relationship between characteristics and environmental influences (Bandura, 1989).

Human expectations, beliefs, emotions and thoughts are developed by social environment influences (Bandura, 1986). In the following examples, environment is the physical design of residence hall floors, buildings and the campus as a whole. An individual can affect the environment by choosing where he/she wants to live. If the student has an expectation to make it into the honor's college, the student may choose to live in the residence hall where the majority of the honors college students reside. That student is affecting the environment by choosing to live in one of the honors hall rooms because of a specific goal that he/she had. The environment can affect the student if he/she were placed in an older hall that had thin walls. The design of that building could affect that student's study habits if the building had thin walls and there was a lot of noise entering the room from nearby rooms and hallway spaces.

The behavior and environment reciprocal causation reflects the two-way influence they have on each other. Winston Churchill said "we shape our buildings and then they shape us" (Strange & Banning, 2011, p.12). Our behavior determines our environment and the environment can determine behavior. The environment is not a fixed entity and typically does not operate as an influence until activated by appropriate behavior (Bandura, 1989). Behavior can determine environment by how students use the campus. If students walk across a field of grass to get from building to building for their classes, the university grounds staff may decide to construct a sidewalk on that path to help students efficiently get to and from buildings. Environment affects students in the sense that students will use the space that is provided for them. A residence hall floor plan affects how a student will circulate through that space. The environment has a direct impact on the behavior that occurs within that environment, such as stair or wall

placement. Behavior cannot be completely dictated by the design of the building. Students may enter through a building opening that says "exit" rather than "entrance" (Brandon et al., 2008).

Residence Halls

In the 1970's a number of studies examining college residence halls were conducted, but little research has appeared in the last three decades (Delvin et al., 2008). Residence halls provide an opportunity for meeting people and learning to live with new people. They provide opportunities for facilitating educational and social programs, floor involvement through activities and extra-curricular events, and creating social interactions and relationships. However, Heilweil (1973) stated that 33% of men and 43% of women found residence halls to be a least desirable place to live among other available choices. These students' dissatisfaction with residential housing related to the architectural design of the building rather than the administrative style or regulations of the building. That study was done nearly 40 years ago and since then more studies have focused on the design of residence halls (Brandon et al., 2008; Case, 1981; Delvin et al., 2008; Paine, 2007) and on the amenities that can be offered within the residence hall to create more student satisfaction (Abramson, 2012; Angelo & Rivard, 2003).

Studies of residence hall designs focus on two main types, suite style and traditional style living arrangements. Traditional style buildings house residents in rooms with one or two other people (Delvin et al., 2008). These residence halls typically have a long central corridor with residents sharing common bathrooms, laundry facilities and study lounges. Suite style residence halls typically consist of 6-8 residents sharing among

themselves a common lounge and bathroom. Some of these suite style halls will also include a shared kitchen within the suite.

Today's college students demand a different type of housing than has traditionally been offered on university campuses in the past (Argon, 2003). Students want more privacy, amenities, and space. Some researchers suggest providing more amenities in residence halls such as fitness centers and creating more privacy by having suite style halls in order to enhance student satisfaction with residence hall living (Abramson, 2012; Angelo & Rivard, 2003). Adding amenities such as fitness centers, study lounges and places to socialize enhances the transition of the concept of a "dorm" housing students into a "residence hall" that facilitates student learning. A dorm is known as a place just for eating and sleeping while a residence hall is known for a broader range of activities. Residence halls are places where students can live, interact and learn (Brandon et al., 2008).

Few campus environments influence the behaviors of college students as much as the residence halls (Pascarella & Terenzini, 1982). Residence hall design can influence how students interact within that space (Hamrick, Evans, & Schuh, 2002). When designing a residence hall, it is crucial to be intentional about design factors. These design factors include overall layout, circulation, common area, room placement, stair placement, entrances and exits. Stair or wall placements are contributors to architectural dimensions (Strange & Banning, 2001) and can influence how residents use the space that is created. Residence halls designed with multiple entrances can result in fewer interactions among students because there are more options to exit and enter the building (Brandon et al., 2008). Students tend to use the closest exit or entrance to their room

which would result in passing by fewer rooms. Designing a residence hall with multiple social gathering spaces could encourage students to interact more with one another than a residence hall with fewer common areas.

Social Interaction and Residence Halls

For most students, residence halls may be considered the center of their social world (Terenzini & Pascarella, 1984). Social interactions that result in making friendships are common. The proximity of residents from one another can play a role in the amount of interaction among residents. This means that the closer residents live to one another, the greater chance there is for interaction. There is little research on the relative effects of proximity and much of it is dated (Case, 1981; Festinger, Schachter, & Back, 1950; Newcomb, 1961). Research stated that the closer people live in terms of physical distance, the greater chance they will have of meeting one another. By meeting each other, the residents can begin to form friendships. By living close to one another, residents share the same walking paths through the hallways. The higher number of paths the residents are likely to share, the greater probability of contact and interaction the students will have (Festinger et al., 1950). Having a larger number of shared paths can be executed by having fewer entrances and exits in a building.

Godshall (2008) believed there are many design factors to consider when creating common paths and proximity. Residents will share one or more main entries, common paths and transitional spaces such as stair landings and alcoves. Residents living near staircases were more likely to know others in the building over those who were only one room away from the staircases (Festinger et al., 1950). This will lead residents to share those common paths more often and provide more contact. There is no precise formula to

follow, but these spaces need to be taken into consideration when designing a residence hall (Godshall, 2008). Open living spaces and arrangements tend to facilitate more human interaction than there would be with a closed design (Blake, 1956). These are spaces wherein students will socially interact with others and they can meet other residents while passing through the area. It is also important to consider proximity and shared paths when placing the Resident Assistant's (RA) room on the floor. The RA room should be strategically placed based on the traffic flow, centrality and adjacent to the staircases and bathrooms (Heilweil, 1973). This proper placement will allow the RA to frequently see and interact with all residents.

It is argued that architecture and design will only have an effect on the friendships formed if the student population is compatible in the first place (Gans, 1967). People prefer to associate with people who are similar to themselves and no amount of physical closeness can change that (Case, 1981). Therefore, if residents have conflicting views and personalities that get in the way of creating a relationship, the building design and proximity will not have an effect on the formation of friendships in the residence hall. If residents choose to not associate themselves with their neighbors because of preconceived notions of being different and not getting along, it will result in no attempts to interact in the first place.

Although residents may choose not to interact based on perceived differences, residence halls nevertheless provide opportunities to do so. The residence halls give students the chance to meet and interact with other people from all types of diverse backgrounds (Brandon, et al., 2008; Heilweil, 1973). There will be a large number of students living close together within the residence hall. The closer together a number of

people live, and the greater the social similarity, the greater probability of shared interests, and the greater the probability of social interactions. A sense of community should be provided to those students who desire it since they are away from the security of family and their former network of friends. These spaces can be in the form of hallways, lounges, lobbies or nooks. The space also provides RAs with the opportunity to facilitate programs for residents to interact and get to know one another.

The residence halls provide different opportunities and spaces for interaction depending on the design. A qualitative study by Brandon, Hirt, and Cameron (2008) was done to examine interactions that took place among residents in traditional and suite style residence halls. Interaction in their study was defined as face-to-face interaction that lasted more than five minutes. The sample included six residence halls on campus and 10-12 students residing in each of those six halls were participants. Sixty two residents participated in the study to collect data through six individual focus groups. Students were asked to number their interactions during a four day period and transcribe their interactions to a floor plan. The results found an average of 10.4 interactions per participant over a four day period. On average, each suite style participant reported a total of 8.5 (23%) fewer interactions per participant than those living in traditional style halls. During the interview, participants expressed that the design of suite style halls limited the extent of interactions with others. Residents living in suite style rooms had 75% of their interaction take place somewhere within the suite and traditional style halls had 70% of their interactions take place in their room. The study suggested that traditional style halls facilitated more interaction than suite style residence halls. Students

preferred the privacy and amenities of suite style halls, but the traditional living environment had more interpersonal interaction and sense of community.

Student satisfaction is important because it is an indicator of retention rates (Pascarella, et al., 1994). The top predictor of satisfaction with the residence halls among students is interacting with others. This includes meeting people, living together, resolving conflicts, and developing relationships in their communities (Curley, 2003). To maximize retention rates, residence hall design can be taken into consideration when providing a space that students can interact with one another and enjoy where they live.

Sense of Community and Residence Halls

A contemporary focus of research is creating a sense of community in residence halls. A sense of community in a residence hall fosters the social integration of first year college students (Berger, 1997). Berger believed that residence halls should provide opportunities for residents to interact socially and engage in frequent face-to-face social interaction. A suggestion provided was that opportunities for this should be provided during the first week that a resident moves in during the fall semester. Early peer involvement enhances social integration.

Properly designed residence halls have a positive impact on the sense of community and interaction among students (Eshbaug, 2008). Devlin, Donovan, Nicolov, Nold and Zandan (2009) conducted a study to determine if different residence hall designs affected the sense of community students experienced. Nearly 600 students across class years completed the Sense of Community Index (SCI) and the Relationship Dimension of the University Resident Environment Scale survey. Students also rated architectural characteristics about their residence halls and provided background

demographic information. The results indicated significant differences in the sense of community around cluster style residence halls and suite style configurations. The researchers found that cluster style residence halls had a lower sense of community and had a significantly smaller percentage of their doors open on a daily basis compared to other style halls. Students in the traditional halls had significantly higher scores on the instrument's scales, including greater satisfaction with their living arrangements. The researchers thought that the traditional halls would produce negative results for social interaction. However, the results indicated the opposite. Residents of traditional style halls did have a harder time forming social groups though. The researchers found that the participants liked suite style halls' physical characteristics, such as privacy, but found a disadvantage on interpersonal aspects by living with more people with different personalities (Devlin et al., 2009).

There have also been some studies that resulted in suite style residence halls showing a greater sense of community. Rutledge (2012) researched the effects of suite style residence halls and transitional residence halls on students' GPAs, on campus involvement and sense of community. A transitional hall in this study was defined as a traditional style room that included a bathroom. RAs distributed surveys to residents living in suite style and transitional halls during a floor meeting and 206 students responded. Results indicated that students living in suite style residence halls were more likely to answer positively about living on campus next year. The researcher made an assumption that suite style residents that were involved on campus had a greater sense of community than those residing in transitional style halls. Transitional style halls were well-designed residence halls, but residents did not have the same overall positive

outlook as the suite style students did. Rutledge concluded that “the design of the residence hall alone cannot create all of these positive outcomes. Design must be accompanied by other aspects of college life” (Rutledge, 2012, p. 39).

Creating a sense of community improves the chance that students will develop a connection with their institution and increase retention (Kennedy, 2002). To create a sense of community, building design should be factored in. Creating spaces that encourage people to come together with little effort generates interaction within the residence hall (Kuh, Douglas, Lund, Ramin, & Gyurnedk, 1994). The physical design of the building influences social relationships by controlling the proximity of one person to another (Case, 1981). Creating shared space such as alcoves, nooks and overlooks will create spaces in which students can choose to have interactions with one another (Brandon 2007; Godshall, 2000). This shared space results in students moving out of their private spaces and meeting in a central location to build relationships. Organizing rooms to be a smaller neighborhood could foster a sense of community to draw students out of their room. Breaking up large residence halls into smaller community units help students feel as if they live in a more close knit community (Heilweil, 1973).

Summary

There have been numerous studies around residence hall floor plan design and the social effects it has on residents. Many of the studies were conducted decades ago and have had one primary focus, such as sense of community, social interaction, or satisfaction. By analyzing all of these variables through quantitative data collection, this research will gain further insight into the relationship of residence hall floor plan and student social interaction satisfaction.

CHAPTER III

Methodology

This chapter outlines the framework used to conduct the present study the relationship between floor plan type and social interaction, community, retention and satisfaction. The design of the study, participants, instrument, data collection, treatment of data, and data analysis are discussed below. A modified quantitative survey employing a Likert type scale was administered to college students at a Midwestern, public university to address the research questions, which are repeated below. Survey responses were analyzed using descriptive and comparative statistics.

Research Questions

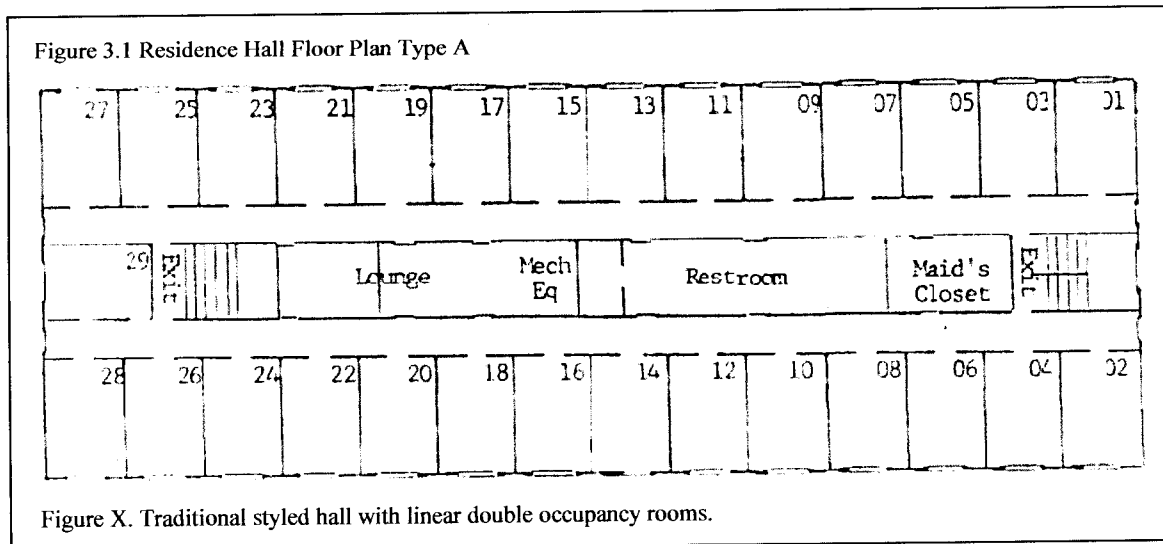
To further understand architectural design and its relation to social interactions among students living in different types of residence halls, this study sought to answer the following questions:

1. Is there a relationship between a student's floor plan type and the quality of social interaction?
2. Is there a relationship between the floor plan type and the social interaction among the students on the floors?
3. Is there a relationship between floor plan type and sense of community on the floor?
4. Is there a relationship between floor plan type and retention?
5. Is there a relationship with floor plan type and overall level of perceived satisfaction?

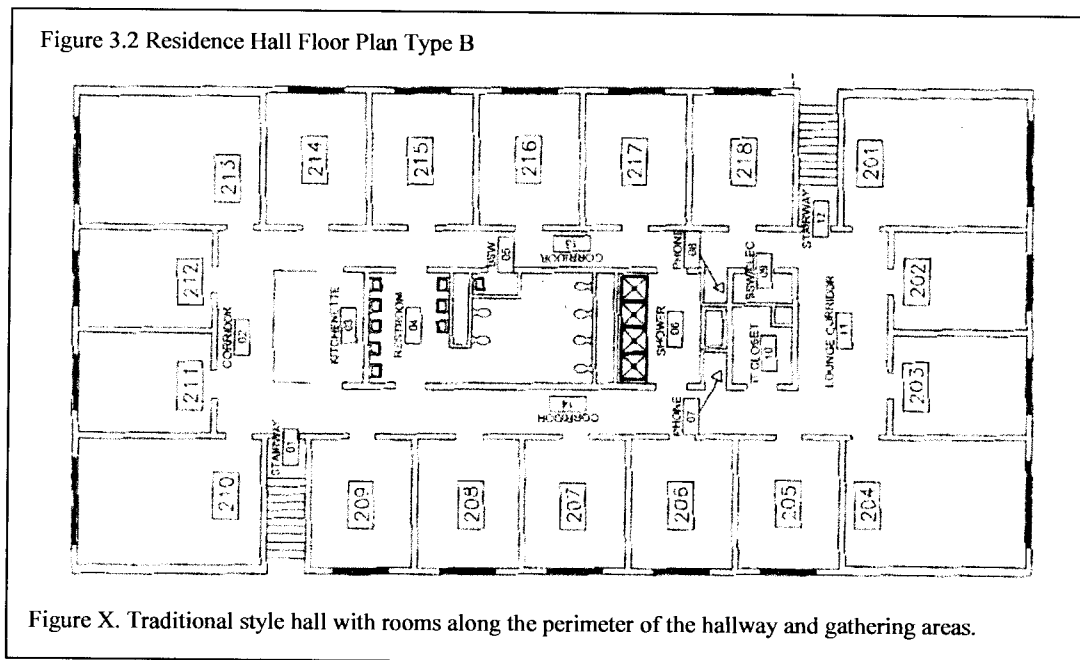
Design of the Study

The purpose of this study was to assess if students living in different residence hall floor plan types experienced a different level of student social interaction satisfaction. The study utilized a modified quantitative survey administered to on campus students in residence halls at a mid-sized Midwestern institution. The survey included questions about demographics, hall type, interaction level, and overall satisfaction of residence hall type (Appendix II). Among items used were participants' gender, age, race, and class level, and residence hall in which students lived. A brief description of physical characteristics of each residence hall floor plan type follows:

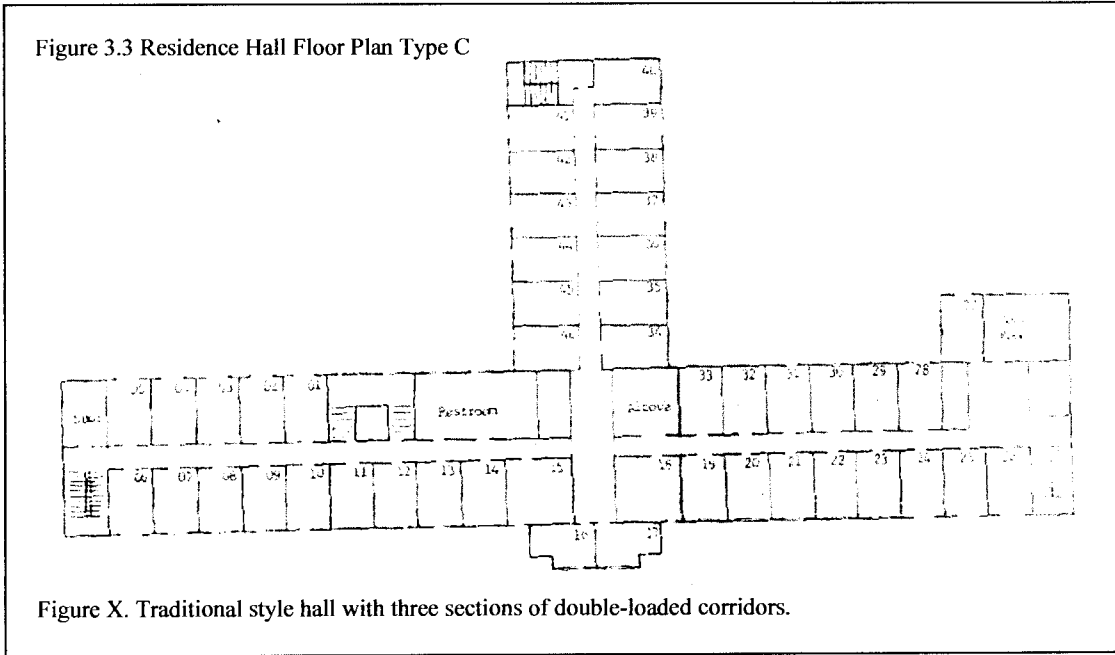
Residence hall floor plan type A. Floor plan type A was a traditional style hall with linear double occupancy rooms. The two rows of linear rooms were separated by a hallway with a center core including the floor lounge, stairwells and community bathrooms. Four residence halls with this type of floor plan are included in the university housing facilities (Figure 3.1). Three of these residence halls are co-educational by floor and one is an all female hall. These buildings were constructed in the years of 1964-1967 and have been continuously in use without any major renovations since that time.



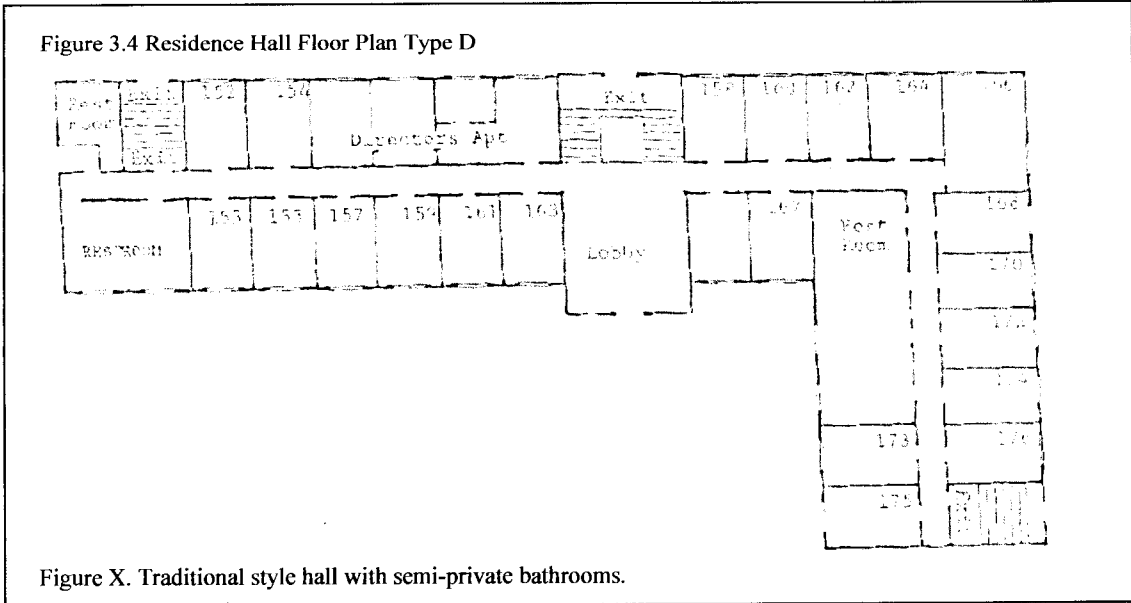
Residence hall floor plan type B. Floor plan type B was a traditional style two story hall with two identical wing floor plans. This floor plan has rooms all along the edges of the building creating a rectangle around the kitchenette, lounge and bathrooms. Three halls have this floor plan in the university housing facilities, two of which have community bathrooms and one that has recently renovated to semi-private bathrooms (Figure 3.2). These residence halls are co-educational by wing. These buildings were constructed in the years of 1959-1960 and have been in use continuously since that time.



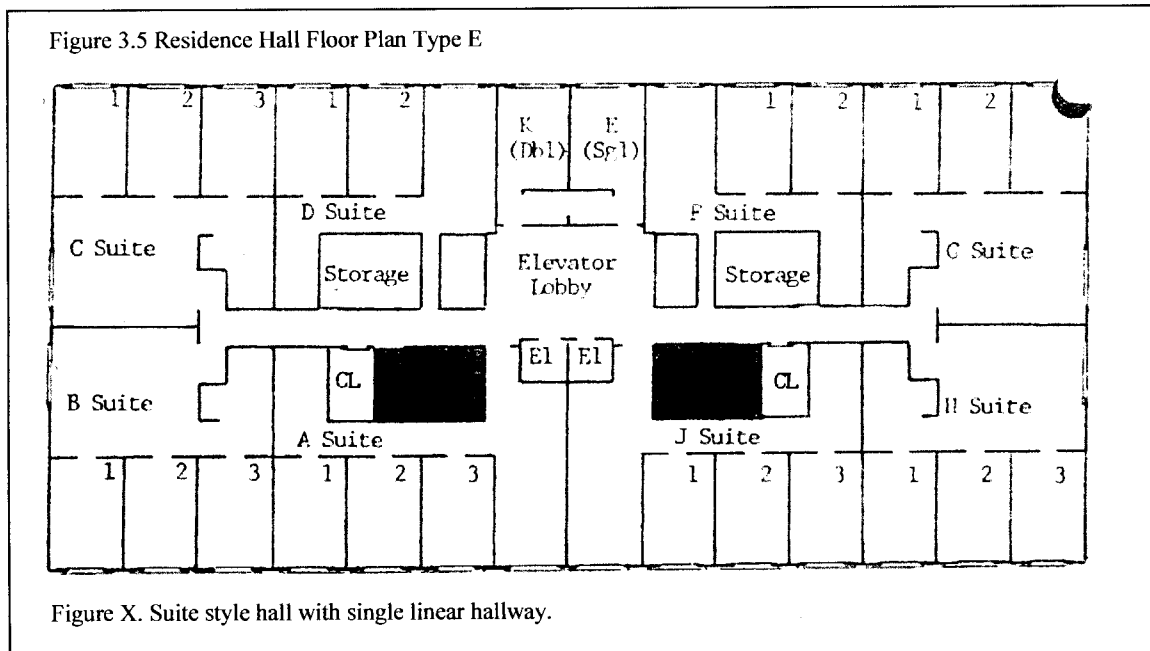
Residence hall floor plan type C. Floor plan type C was a traditional style hall with three hall sections of double-loaded corridors. There were community bathrooms and there is one residence hall with this floor type in the university housing facilities. This residence hall was an all female hall and constructed in the year of 1909. In 1960 a new wing was added to the original structure (Figure 3.3).



Residence hall floor plan type D. Floor plan type D was a traditional style hall with semi-private bathrooms renovated in 2009-2010. The double loaded corridor is "L" shaped and two buildings with this type of floor plan are included in the university housing facilities (Figure 3.4). Both residence halls were single sex by building, one male and one female. These buildings were constructed in the year of 1952 and have been in use continuously since that time.



Residence hall floor plan type E. Floor plan type E was a suite style hall with a single linear hallway connecting the suites. There was one residence hall with this floor type included in the university housing facilities (Illustration 5). This residence hall was co-educational by suite and resided in by upperclassmen. This building was constructed in the year of 1968 and has been in use continuously since that time.



Site

The present research was conducted during fall 2013 at a mid-sized public comprehensive university in the Midwest. Enrollment figures for the 2013 fall semester showed a total of 9,775 students. The overall class level of students was 20% freshman, 16% sophomore, 21% junior, 29% senior and 14% graduate students. Of the student population approximately 60% were female and 40% were male. White students made up the majority of the population with 72%, while 16% were Black or African American, 4% were Hispanic/Latino, 2% identified as multiracial, 1% identified as American

Indian/Alaska Native, Asian, and Native Hawaiian/Pacific Islander and 5% unknown.

The institution is located in a rural town of about 20,000 people.

The campus physical layout includes twelve traditional residence halls, but one building constructed in 1971 was off-line for renovations during the 2013-2014 year. The total student population that lived in the residence halls was about 23% of all enrolled students. Available on-campus residence hall options included single-sex by building and co-educational by floor. The institution also offered fraternity/sorority housing and apartment housing whose residents were not surveyed for the purpose of the present study.

Participants

The target sample for the purposes of the present study was the 2,455 students who lived in eleven residence halls. Of the 2,455 on campus students, 482 students took the online survey, and 450 students provided complete data for analysis purposes. Completed usable student survey characteristics (N=450) are listed (Table 1). The study excluded those on-campus residents living in apartments and Greek housing.

Table 1

Demographic Breakdown

	On Campus Participants		On Campus Student Population	
	N	%	N	%
Total Completion	450	100%	2,455	100%
Gender				
Female	351	78.0%	1,491	61%
Male	96	21.3%	964	39%
Unidentified	3	0.7%	0	0%
Race				
African American/Black	86	19.1%	64	25%
Asian/Pacific Islander	11	2.4%	33	1%
Bi/Multi Racial	14	3.1%	*ND	*ND
Caucasian/White	313	69.6%	1,499	61%
Hispanic/Latino	17	3.8%	133	5%
Other	9	2%	179	8%
Class Level				
Freshman	217	48.2%	1,526	62%
Sophomore	100	22.2%	469	19%
Junior	65	14.4%	243	10%
Senior	64	14.2%	207	8%
Unidentified	4	0.9%	10	1%

*ND= No data available

Instrumentation

The survey instrument developed for the purposes for the present study was created by the principal investigator (PI) in the form of a Likert type scale. Participants were asked to rate each item on a five point Likert type scale with “1” being strongly disagree and “5” being strongly agree. The response range was strongly disagree, disagree, neutral, agree, and strongly agree. The survey was a modified version of items from the Sense of Community Index (SCI) developed by Chavis (2008) and items based on a survey from Rutledge (2012). The current survey was designed to investigate the relationship between the floor design of residence halls and the relationship between social interaction, sense of community, retention, and overall satisfaction. Based on

previous research, the 31 survey items selected or developed were sorted into five "a priori" scales by the PI. The five scales were designed to address the five research questions posed in Chapter I around quality of social interaction, social interaction among students, sense of community, retention, and overall perceived satisfaction.

A set of demographic items were administered as part of the data collection process for purposes of data analysis. Items included participants' gender, age, race, class level, residence hall living in, floor living on, semester lived in the residence halls, student organizational involvement, and whether or not they were first generation college students (Appendix II). Demographic data were used to perform analyses between different subgroups by floor design and the item "Current residence hall living in" (Appendix II, item 5) was the main demographic item used for the purpose of analysis since it determined the floor plan type.

Data Collection

Data were collected electronically using SurveyMonkey.com and sent to participants' campus e-mail accounts after the first 6 weeks of classes in the fall of 2013, October 1st-October 15th. Immediately prior to sending out the survey, University Housing and Dining Services sent out a community satisfaction survey to all students living on campus in the residence halls. After six weeks, the PI theorized that students had enough daily exposure to other students in their buildings to reliably reflect on the quality of their living experience. After reading the informed consent, student participants were able to click on a link which navigated them to the survey. An incentive for taking the survey was offered to maximize responses. After completing the survey participants could choose to enter their e-mail address to be placed in a random drawing to win

campus dining dollars in the amount of \$50, \$25, and \$10. Two reminder e-mails were sent out after the survey was released. One reminder was sent on the sixth day after the release of the survey, and another on the twelfth day. After two weeks, October 15, the survey was closed. Of the 2,455 students, 482 students completed the survey for a return rate of approximately 19%. Of the 482 total surveys returned, 450 were usable responses available for data analysis, and 32 were discarded due to incomplete responses.

Treatment of Data

All data collected were obtained within the institution's IRB platform and confidentiality guidelines. The survey data were collected using SurveyMonkey.com, which required a password to access. After data were collected, responses were downloaded and put into an Excel spreadsheet stored on the primary researcher's password protected computer, which was at all times securely locked and kept in a private location. The Excel spreadsheet was transferred to SPSS for data analysis. Descriptive statistics were used to describe respondent characteristics, and comparative as well as inferential statistics were used to analyze the data.

Data Analysis

The plan of data analysis included the following steps. Data preparation included removal of 32 participants due to incomplete survey responses. Responses for gender, race/ethnicity, current residence hall living in, floor living on, and campus student organizational involvement were re-coded into numeric format. Responses to questions "I'm uncomfortable meeting new people" (Q14) and "Very few of the students on my floor know me" (Q38) were reversed on the Likert type scale since the items were framed in a negative direction and the scale scores were summed in a positive direction. Where

single missing items were found in survey responses, the mean response for the missing response was substituted. New variables were created for floor plan types. Responses for living in residence halls with the floor plan type A were coded as “1”. Halls with floor plan type B were coded as “2”. Hall floor plan type C was coded as “3”. Halls with floor plan type D were coded as “4”. Hall floor plan type E was coded as “5”.

The PI created a set of "a priori" scales based on previous research described in Chapter II and personal judgment. For each of these scales, the degree of Cronbach's Alpha internal consistency reliability was determined and reported (Table 2). Two scales showed too low of reliability to be used for further analysis (Dr. Catherine Polydore, personal communication, November 15, 2013).

Table 2

Cronbach's Alpha Internal Consistency Reliability for Independent Variables

Independent Variable	Cronbach's Alpha
Quality of social interaction	.323
Q11: The layout of my residence hall floor plan allows me to go straight to my room without passing a main lobby	
Q20: The layout of my residence hall floor plan allows me to go straight to my room by passing little to no other rooms	
Q26: I like having multiple entrances and exits in my residence hall floor plan	
Q31: I enjoy interacting with other students in my residence hall floor plan	
Q35: Some of my closest friends are the people I have met on my floor	

(continued)

Table 2

Cronbach's Alpha Internal Consistency Reliability for Independent Variables (continued)

Independent Variable	Cronbach's Alpha
Social interaction among the students on the floors	.750
Q10: Living in my residence hall floor has allowed me to make new friends that would have been difficult to meet on campus otherwise	
Q15: I think the design of my residence hall floor plan has helped encourage interaction among the students who live here	
Q22: There are adequate places in my residence hall floor plan (ex. lobby, hallways, stairwells) for me to have a conversation with someone without interrupting the flow of traffic	
Q23: The design of my residence hall floor plan fosters impromptu conversations and collaboration	
Q25: I leave my door open to interact with other students living in my residence hall floor	
Q28: I interact with other students in my residence hall floor	
Sense of community on the floor	.801
Q12: I can recognize most of the people who live on my floor	
Q17: I interact with other students in my residence hall floor through programs and activities planned by my RA or Hall Council	
Q18: I interact with other students in my residence hall floor through impromptu group activities (movie nights, game nights, discussions, other activities)	
Q21: I know most of the residents living on the opposite end of my residence hall floor	
Q27: Most of my neighbors know me	
Q34: My Resident Assistant has played a large role in connecting me with other residents on my floor	
Q37: I feel at home on this residence hall floor	
Q38: Very few of the students on my floor know me	
Retention	.405
Q13: My college experience has been positively impacted by living on campus	
Q19: I plan to live on campus next year	
Q24: I plan on returning to school next year	

(continued)

Table 2

Cronbach's Alpha Internal Consistency Reliability for Independent Variables (continued)

Independent Variable	Cronbach's Alpha
Overall level of perceived satisfaction	.820
Q16: I think my residence hall floor is a good place for me to live	
Q29: I interact with other students in my residence hall floor	
Q32: I am satisfied with the overall layout of my residence hall floor plan	
Q36: I like the fact I can meet diverse people in my residence hall floor	
Q39: I like meeting diverse people in my residence hall floor	
Q40: I've had a positive university experience	

NOTE: *Scales with a Cronbach's Alpha less than .7 were dropped from further analysis

Analyses were carried out using the three scales with sufficient reliability (social interaction, sense of community, and overall perceived satisfaction) against the principle independent variable floor plan type. A one-way MANOVA was conducted to remove any response outliers in order to meet the nine one-way MANOVA assumptions (Lund & Lund, 2013). After identifying and removing the outliers, a one-way MANOVA was conducted on the revised data. Scheffé Post Hoc Tests were conducted when MANOVA results indicated there was a significant interaction between residence hall floor plan type and the dependent variables for social interaction among students and overall satisfaction. Results are presented in Chapter IV.

Summary

Chapter III presents the methodology for the present study. The quantitative study analyzed the data from 450 respondents attending a Midwestern, public university. The data were analyzed using SPSS by conducting descriptive statistics and comparative as well as inferential statistics. Chapter IV will describe the results of the statistical analysis,

and Chapter V will include the discussion of the results in the light of prior research found in Chapter II, along with conclusions and recommendations for professionals and future research.

CHAPTER IV

Results

This chapter presents the results of a study conducted to assess the relationship between residence hall floor plan and social interaction, sense of community, retention and satisfaction within the university residence halls at a mid-sized, Midwest university. The data consisted of survey responses from 450 students living in 11 residence halls on campus. Survey questions were originally categorized into five different scales and related to one of the five research questions. These five scales were tested for sufficient Cronbach's alpha reliability but two were not stable enough for analysis (Table 2). Combinations of descriptive and inferential statistics were used for further analysis of participants' relationship between residence hall floor plan type and social interaction, community, retention and overall satisfaction. During data analysis, four participant's scale score responses were identified as outliers based on appearing twice in box plots of the data, showing scale means and standard deviation (Respondents 8, 180, 228, and 340; Chart 1, Chart 2, and Chart 3). A one-way MANOVA was conducted on the data after removal of the four outliers to increase data fidelity. Scheffé Post Hoc Tests were conducted with the significant social interaction among students and overall level of perceived satisfaction in relation to residence hall floor type.

Chart 1

Social Interaction Among Students Outlier Box Plot

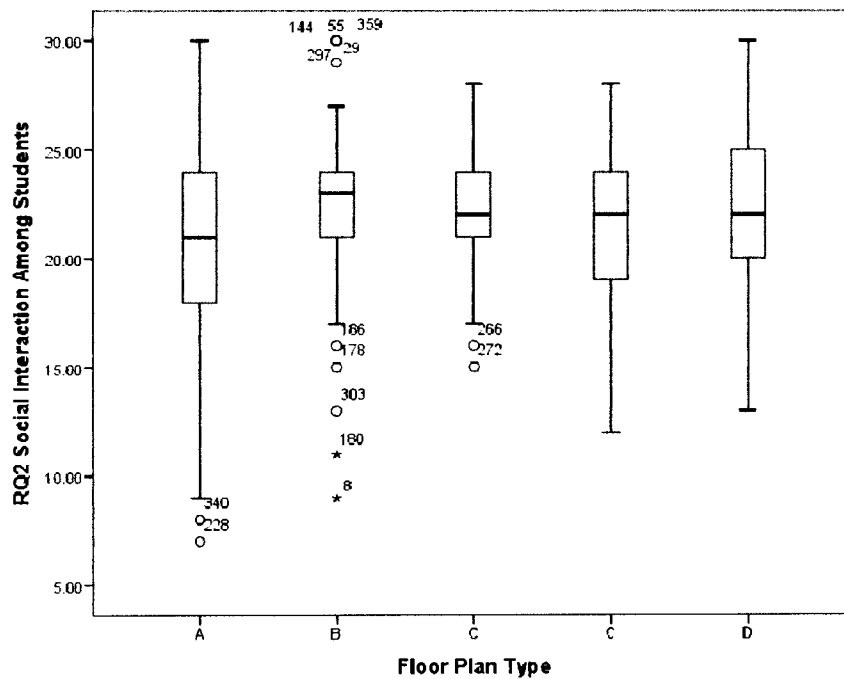


Chart 2

Sense of Community Outlier Box Plot

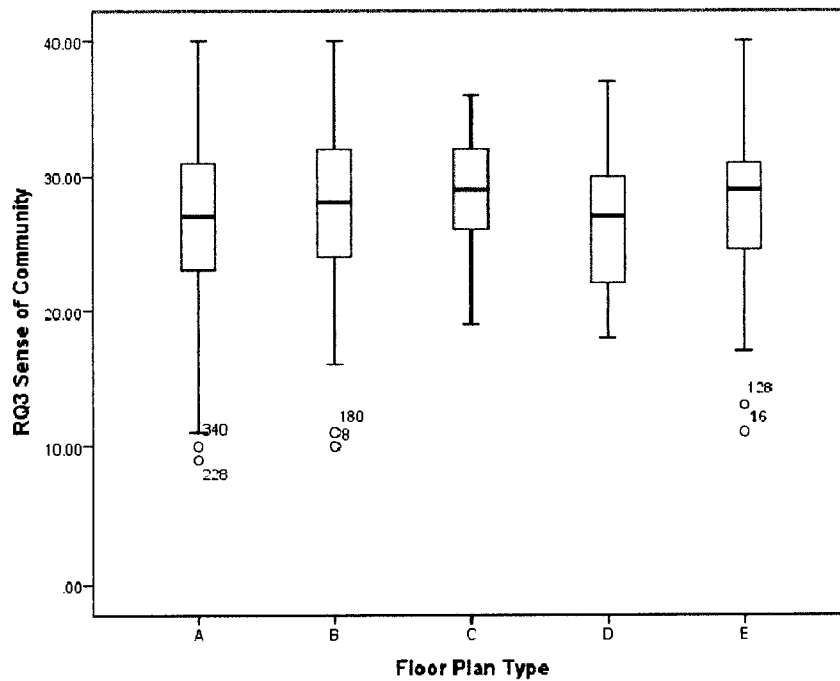
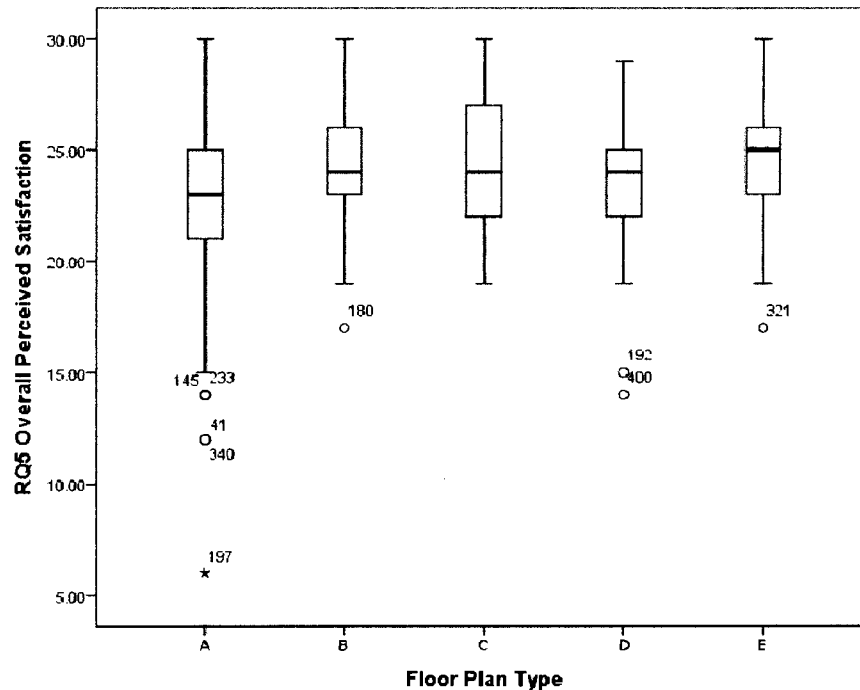


Chart 3

Overall Level of Perceived Satisfaction Outlier Box Plot

RQ1: Is there a relationship between a student's floor plan type and the quality of social interaction?

The directional hypothesis for research question #1 was that there would be a meaningful relationship between floor type and the quality of social interaction.

Residence hall corridor style floor plan types A, B, C, and D were hypothesized to have a higher relationship to quality of social interaction than residence hall suite style floor plan E, based on the literature review found in Chapter II. However, since the a priori scale did not meet adequate reliability as measured by the Cronbach's alpha test, no analysis could be carried out on this research question.

RQ2: Is there a relationship between the floor plan type and the social interaction among the students on the floors?

The directional hypothesis correlating to the relationship of floor plan type and social interaction among students on the floor is that residence floor plan type B and type C would have a more positive relationship than residence hall floor type A with social interaction based on the literature review found in Chapter II. Cronbach's alpha for the social interaction among students scale ($\alpha=.750$) met the criterion for analysis (Table 2).

A one-way MANOVA was conducted on the data after removal of the four outliers between social interaction among students and residence hall floor plan type ($F(4,411)=2.967, p=.019$; Table 3).

Table 3

One-Way ANOVA of Social Interaction Among Students and Residence Hall Floor Plan Type

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	177.017	4	44.254	2.967	.019
Within Groups	6577.701	441	14.915		
Total	6754.717	445			

A Scheffé Post Hoc Test was conducted with the significant MANOVA in relation to residence hall floor type (Table 4). The Scheffé multiple comparisons indicated that floor plan type A and floor plan type B had a significant difference in terms of social interaction among students ($\alpha=.048$).

Table 4

Scheffé Post Hoc Test of Satisfaction Among Students

(I) Floor Plan Type	(J) Floor Plan Type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
fp1	fp2	-1.69751	.54556	.048*	-3.3851	-.0099
	fp3	-1.11717	.65167	.569	-3.1330	.8986
	fp4	-.15102	.60438	1.000	-2.0206	1.7185
	fp5	-.82449	.60960	.767	-2.7102	1.0612
fp2	fp1	1.69751	.54556	.048*	.0099	3.3851
	fp3	.58033	.77495	.967	-1.8168	2.9775
	fp4	1.54649	.73563	.354	-.7291	3.8220
	fp5	.87302	.73993	.845	-1.4158	3.1618
fp3	fp1	1.11717	.65167	.569	-.8986	3.1330
	fp2	-.58033	.77495	.967	-2.9775	1.8168
	fp4	.96615	.81743	.845	-1.5624	3.4947
	fp5	.29268	.82130	.998	-2.2479	2.8332
fp4	fp1	.15102	.60438	1.000	-1.7185	2.0206
	fp2	-1.54649	.73563	.354	-3.8220	.7291
	fp3	-.96615	.81743	.845	-3.4947	1.5624
	fp5	-.67347	.78430	.947	-3.0996	1.7526
fp5	fp1	.82449	.60960	.767	-1.0612	2.7102
	fp2	-.87302	.73993	.845	-3.1618	1.4158
	fp3	-.29268	.82130	.998	-2.8332	2.2479
	fp4	.67347	.78430	.947	-1.7526	3.0996

*Significant at .05 or less

RQ3: Is there a relationship between floor plan type and sense of community on the floor?

The directional hypothesis for research question #3 was that students living in residence hall floor plan type A, B, C, and D would have a more positive relationship between floor plan and sense of community than residence hall floor plan type E, based on the literature review found in Chapter II. Cronbach's alpha for the sense of community on the floor scale ($\alpha=.801$) met the criterion for analysis (Table 2). The one-way MANOVA indicated that the scale was not significant for further analysis ($F(4,441)=1.822, p=1.24$; Table 5).

Table 5

One-Way ANOVA of Sense of Community and Residence Hall Floor Plan Type

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	234.144	4	58.536	1.822	.124
Within Groups	14168.385	441	32.128		
Total	14402.529	445			

RQ4: Is there a relationship between floor type and retention?

The directional hypothesis correlating to the relationship of floor type and retention is that there would be a relationship between residence hall floor plan type and retention. Three items only comprised the scale and the Cronbach's alpha ($\alpha=.405$) of the scale was too low to use for the purposes of analysis.

Alternatively, to determine if there was any relationship of floor type and retention, two retention questions were examined using individual survey item cross tabulations with floor plan type. The first question was "I plan on returning to school next

year" (Q24) (Table 6). The hall with the largest percentage of students not planning to return next year based on cumulating answers of "disagree" and "strongly disagree" was residence hall floor plan type E with 14.58%. Following were residence hall floor plan type D at 8.16%, type B at 6.15%, type C at 2.44% and type A at 2.43%.

Table 6

Cross-Tabulation of Floor Plan Type and University Retention

Floor Plan Type		Strongly Disagree & Disagree	Neutral	Strongly Agree & Agree
A	N	6	22	219
	%	2%	9%	89%
B	N	4	4	57
	%	6%	6%	88%
C	N	1	2	38
	%	2%	5%	93%
D	N	4	3	42
	%	8%	6%	86%
E	N	7	11	30
	%	14%	23%	63%

The second question examined using an individual survey item cross tabulation was "I plan to live on campus next year" (Q19) (Table 7). The hall with the largest percentage of students not planning to live on campus next year based on cumulating answers of "disagree" and "strongly disagree" was residence hall type A with 34.01%. Following were residence hall type D at 24.49%, type B at 23.08%, type E at 20.83%, and type C at 17.07%.

Table 7

Cross-Tabulation of Floor Plan Type and On-Campus Retention

Floor Plan Type		Strongly Disagree & Disagree	Neutral	Strongly Agree & Agree
A	N	84	50	113
	%	34%	20%	46%
B	N	15	11	39
	%	23%	17%	60%
C	N	7	6	28
	%	17%	15%	68%
D	N	12	12	25
	%	24%	24%	51%
E	N	10	11	27
	%	21%	23%	50%

RQ5: Is there a relationship with hall type and overall level of perceived satisfaction?

The directional hypothesis related to the overall level of perceived satisfaction was that residence hall type E would have a higher level of reported satisfaction among residents than residence hall type A, B, C, and D, based on the literature review found in the literature review. Cronbach's alpha for the overall level of perceived satisfaction scale ($\alpha=.820$) met the criterion for analysis (Table 2). Scheffé Post Hoc Tests were conducted following the significant ANOVA ($F(4,441)=3.272, p=.012$) in relation to residence hall floor type, but the Scheffé Post Hoc tests did not identify a single pair comparison that was statistically different from the other paired comparisons.

Table 8

One-Way ANOVA of Overall Perceived Satisfaction and Residence Hall Floor Plan Type

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	159.661	4	39.915	3.272	.012
Within Groups	5380.306	441	12.200		
Total	5539.966	445			

Table 9

Scheffé Post Hoc of Overall Perceived Satisfaction

(I) Floor Plan Type	(J) Floor Plan Type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
fp1	fp2	-1.34649	.49341	.116	-2.8728	.1798
	fp3	-1.27138	.58938	.326	-3.0945	.5518
	fp4	-.33061	.54661	.985	-2.0215	1.3602
	fp5	-1.25918	.55133	.268	-2.9646	.4463
fp2	fp1	1.34649	.49341	.116	-.1798	2.8728
	fp3	.07511	.70087	1.000	-2.0929	2.2431
	fp4	1.01587	.66531	.675	-1.0422	3.0739
	fp5	.08730	.66920	1.000	-1.9827	2.1573
fp3	fp1	1.27138	.58938	.326	-.5518	3.0945
	fp2	-.07511	.70087	1.000	-2.2431	2.0929
	fp4	.94077	.73929	.805	-1.3461	3.2276
	fp5	.01220	.74279	1.000	-2.2855	2.3099
fp4	fp1	.33061	.54661	.985	-1.3602	2.0215
	fp2	-1.01587	.66531	.675	-3.0739	1.0422
	fp3	-.94077	.73929	.805	-3.2276	1.3461
	fp5	-.92857	.70933	.788	-3.1228	1.2656
fp5	fp1	1.25918	.55133	.268	-.4463	2.9646
	fp2	-.08730	.66920	1.000	-2.1573	1.9827
	fp3	-.01220	.74279	1.000	-2.3099	2.2855
	fp4	.92857	.70933	.788	-1.2656	3.1228

Alternatively, to determine if there was a relationship of level of perceived satisfaction with floor plan type, individual item cross tabulations with floor plan type were conducted with "I am satisfied with the overall layout of my residence hall floor plan" (Q32) (Table 10). The hall with the highest level of satisfaction was residence hall type B at 87.69% answering with an "agree" or "strongly agree". Following were residence hall type C at 80.49%, type D at 79.59%, type E at 79.16%, and type A at 67.61%.

Table 10

Cross-Tabulation of Floor Plan Type and Overall Residence Hall Floor Plan Layout Satisfaction

Floor Plan Type		Strongly Disagree & Disagree	Neutral	Strongly Agree & Agree
A	N	17	63	167
	%	7%	25%	68%
B	N	1	7	57
	%	2%	11%	88%
C	N	3	5	33
	%	7%	12%	80%
D	N	5	5	39
	%	10%	10%	80%
D	N	3	7	38
	%	6%	15%	79%

Summary

For research question one (RQ1) regarding quality of social interaction, the results indicated that the a priori scale did not meet adequate reliability as measured by the Cronbach's alpha test, so no analysis could be carried out. For research question two

(RQ2) regarding social interaction among students, the Post Hoc tests indicated a significant difference between residence hall floor plan type A and B. For research question three (RQ3) regarding sense of community, the Cronbach's alpha was significant and the one-way MANOVA resulted in there being no significant difference between sense of community and floor plan types. For research question four (RQ4) regarding retention, the a priori scale did not meet adequate reliability as measured by the Cronbach's alpha test. Alternatively the cross tabulation of campus retention indicated that students living in residence hall type A were most likely not to return to campus, and students living in hall type E were most likely not to return to the university. For research question five regarding overall perceived satisfaction, the Post Hoc Test indicated that there was no significant difference among overall perceived satisfaction and residence hall floor plan type. Alternatively, a cross tabulation indicated that students living in residence hall type B had the highest percentage of overall perceived level of satisfaction with their residence hall living experience.

CHAPTER V

Conclusion

This chapter presents the results of a study conducted to assess the relationship of residence hall floor plan type to quality of social interaction, social interaction among students, sense of community, retention, and overall perceived satisfaction. This chapter will compare results to relevant literature, limitations to the present study, and recommendations to professionals and further research.

Discussion

Results of the study were compared to relevant literature and interpreted by the PI for each research question.

RQ1: Is there a relationship between a student's floor plan type and the quality of social interaction? Research indicates that residence halls may be considered the center of students' social world (Terenzini & Pacarella, 1984). Social interaction among students on the floor leads to meaningful relationships and friendships. The first research question aimed to determine if the quality of social interaction, such as enjoying meeting people, passing lounges and rooms, having multiple exits, and closest friends were met on the floor. This research question was created by the PI and differed from previous research that asked about social interaction relationships, similar to the present study's second research question. The results indicated that the a priori scale did not meet reliability ($\alpha=.323$) so no further analysis could be conducted. This outcome may have resulted because the a priori scale for this research question was not supported by previous research.

RQ2: Is there a relationship between the floor plan type and social interaction among the students on the floors? One study found that the best predictor of overall student satisfaction is residence hall type (Davis & Roizen, 1970). The directional hypothesis for the present study was that those corridor style floor plans that have a lower square footage of hallway circulation, floor plan type B (Figure 3.2) and type C (Figure 3.3), will have the greatest level of social interaction. The closer people live in terms of physical distance, the greater chance they will have to interact (Festinger et al., 1950) which is why floor plan type B and type C were hypothesized to have the highest social interaction level. Having a lower square footage of hallway circulation suggests that resident hall rooms may be closer together and students are more likely to pass one another. The other hypothesis was that suite style floor plan type E (Figure 3.5) would have the lowest level of social interaction because residents would interact more with other residents in their suite than on their floor. A study by Brandon, Hirt and Cameron (2008) indicated that traditional style halls facilitated more interaction than suite style halls, which is why floor plan type E was hypothesized to have the lowest level of social interaction.

In the present study for RQ2, the a priori scale had a sufficient Cronbach's alpha ($\alpha=.750$) for the analysis to be carried out. The ANOVA with the resident hall type was significant ($F(4,441)=2.967, p=.019$). The Scheffé Post Hoc tests indicated the significant difference was between means for floor plan type A and floor plan type B. Floor plan type B has the lowest circulation square footage and has a more open floor plan. Floor plan type B allows circulation to go in a rectangle promoting social interaction on the floor. The open kitchen and lounge allow residents to be in closer proximity to other

rooms. Floor plan type A (Figure 3.1) has a floor plan with two separate hallways of circulation that do not connect with each other. Floor plan type A is designed cuts off one side of the floor from the other, discouraging students on one side of the floor to interact with students on the other side of the floor. Therefore, the hypothesis is retained that floor plan type B may have the greatest level of social interaction.

RQ3: Is there a relationship between floor plan type and sense of community on the floor? Research indicates that properly designed residence halls have a positive impact on the sense of community (Eshbaug, 2008). One study indicated that those living in traditional style halls had a greater sense of community and satisfaction with their living arrangements, while participants living in suite style halls had a disadvantage by living with more people (Delvin et al., 2009). The directional hypothesis was that students living in traditional style floor plan types (A, B, C, and D), would have a greater sense of community than those residents living in suite style floor plan (E). While the eight sense of community scale items had a sufficient Cronbach's alpha ($\alpha=.801$), the subsequent one-way MANOVA was not significant ($F(4,441)=1.822, p=1.24$) for further analysis.

According to this study, sense of community did not differ among the resident hall floor plan type according to the one-way MANOVA. This outcome may be because the residence hall participants indicated that they had a similar sense of community in their floor plan type. Participants answered similarly to survey items relating to knowing other residents on their floor (Q12, Q21, Q27, Q38), feeling at home on their floor (Q37), and interacting with other residents within their floor plan type (Q17, Q18, Q34). Another factor to consider is that previous studies had a more proportional ratio of

traditional style halls to suite style halls. In the present study, there were ten traditional style halls and one suite style hall. By having an equal amount of traditional and suite style floor plan type facilities to survey, there may have been a statistically significant difference.

RQ4: Is there a relationship between floor type and retention? Research has suggested that student satisfaction in a university setting is an indicator of retention rates (Pascarella et al., 1994) and a sense of community fosters students to make a connection to the institution that will also increase retention (Kennedy, 2002). Based on research, the PI investigated whether a measure of retention had a relationship with different resident hall floor plan types, and found that the three item retention scale had too low of a reliability for use in further analysis. These results may have occurred because there was only three survey items based on retention.

As an alternative to the use of the retention scale, two cross tabulations were carried out on single items that asked respondents about their plans to return to the university and to the residence halls in the next year. The data can only be observed based on nearly half of the results having a cell size smaller than five. Reviewing negative responses for "I plan on returning to school next year" (Q24), floor plan type E had the highest percentage (14.58%) of participants answering that they would not return to the university. Rutledge indicated that students living in suite style residence halls were more likely to answer positively about living on campus next year (2012), but the for present study, suite style floor plan type E was a residence hall for upper classmen. An upperclassman hall would have more students planning on graduating than an underclassman hall, which would suggest why floor plan type E had the highest

percentage of students indicating they do not plan on returning to the university.

Freshman students had no option of a suite style floor plan, so the data of this item does not answer the question for this research question.

Reviewing results for "I plan to live on campus next year" (Q19), floor plan type A had the highest percentage (34.01%) of participants answering that they would not return. This may have resulted due to students' reaction to the floor plan type being less favorable. Further research on this question could be explored to determine why this floor plan type has the highest percentage of students indicating leaving on-campus living.

RQ5: Is there a relationship with hall type and overall level of perceived satisfaction? Curley (2003) indicated that the top predictor of student satisfaction with residence halls is the degree to which they can interact with others. Rutledge's results indicated that suite style halls promoted a more positive overall living experience (2008). The directional hypothesis of the present study was that suite style floor plan type E would have a higher level of satisfaction than the traditional style halls. While the six overall perceived level of satisfaction scale items had a sufficient Cronbach's alpha ($\alpha=.820$) and the subsequent one-way MANOVA was significant ($F(4,441)=3.272$, $p=.012$), the Scheffé Post Hoc tests did not identify a single pair comparison that was statistically different from the other paired comparisons. This result indicates that students are similarly satisfied with their floor plan type for this study. The factor of having disproportional suite style residence halls and traditional style residence halls could be a consideration to why there was no significant difference to the satisfaction level.

Limitations

The study had several limitations. First, the resulting local survey was not tested for validity or reliability beforehand which resulted in some items not being used in the final analysis. Reliabilities (Cronbach's alpha) for three scales included interaction among students ($\alpha=.750$), sense of community ($\alpha=.801$), and overall perceived level of satisfaction ($\alpha=.820$). The two scales that were not reliable may not have had enough items in each. By having more items in the two scales, the reliability may have been higher. Second, the items used in present study were taken from two previous studies (Chavis, 2008; Rutledge, 2012) and combined with locally developed items by the PI into a new instrument. Not only was there not an opportunity to determine the scale validities, but also there were no pre-existing studies with which to compare the outcomes of this study. Third, the study design required a high proportion of responses from students living in each floor plan type, but floor plan type A received a much higher student response than residents living in the other floor plan types. The underlying assumptions behind the statistics used for analysis were not necessarily supported. Forth, participant's answers to this study were also subjective and if the study were repeated in a different campus different results might occur. These results should not be generalized beyond the present campus. If student respondents did not understand the content of an item or fully reflect on their residence hall experience their responses might not have been an accurate reflection of their experience. Fifth, the study was distributed a week after the University Housing and Dining Services distributed a community satisfaction survey and immediately prior to midterm examinations. Students could have been very involved during that time which could have caused them to not take the time to fully

reflect on their residence hall experience or to respond at all. Sixth, much of the previous research on this topic was dated prior to 1980 and social media has become a much bigger influence in student's social lives. Including the effects of social media and technology on student interaction with others in the present study may have resulted in alternative outcomes.

Recommendations to Professionals

Based on the present study, the following recommendations have been made for professionals.

1. **When designing a residence hall, keep in mind the floor type may promote social interaction.** Research indicates that the closer in proximity students are to one another and having more required paths will result in the great probability of forming friendships between one another (Case, 1981). RQ2 results show that floor plan type B and floor plan type A had a significant difference in social interaction. The circulation in floor plan type A and B are very different which could be a contributing factor to the difference in social interaction among students on the floor. Floor plan type B may promote a more social atmosphere by having an open kitchen and lounge with circulation circling the rooms. Floor plan type A had two separate linear hallways that could made it difficult for residents to interact with those living on the opposite side of the hall. Architects should be intentional when designing residence halls and the placement of circulation, stairwells, lounges, kitchens, and exits. It is a need to provide social space to enhance the opportunity for interaction among students (Biliczky, 2005; McKee, 2005; Miller, 2005).

2. **Identify building barriers that may affect the social interaction and sense of community on the floor and attempt to work through them.** Floor plan type A had a barrier that separated students from one side of the hall from the other. Residents could have little reason to cross to the other side of the hall unless specifically seeking to interact with residents on the other side. Being aware of such barriers can assist the resident assistants living on the floor to program to attempt building community on the floor. Being able to identify barriers to interaction could also provide reason to renovate the existing floor plan. A floor plan that does not promote a sense of community will result in a missed opportunity for residents to meet and interact with one another, and reduce the opportunity for student social learning. As a further example, floor plan type D has two sides that are separated by a lounge. Both ends of the floor have exits which results in students not sharing common paths to interact with one another.
3. **University residence hall administrators need to assess their residence halls to determine if they are meeting students' needs.** Argon (2003) stated that today's college students demand a different type of housing than has traditionally been offered on university campuses in the past. Fifty year old buildings may not satisfy current expectations of privacy along with students not being used to sharing rooms. Administration at the site of the present study has renovated some community bathrooms into semi-private bathrooms, creating a higher student satisfaction level. Some researchers suggest providing more amenities in residence halls such as fitness centers, and creating more privacy by having suite style halls enhances student satisfaction with residence halls (Abramson, 2012;

Angelo & Rivard, 2003). Suite style halls do provide more privacy, but at the cost of social interaction on the floor. Reassessing the use of common space to promote interaction is critical, especially when taking into consideration Moore's (2012) survey stating that 51% of all student respondents indicated that the quality of on-campus housing is a determining factor in their decision to attend an institution.

Recommendations for Further Research

1. **Current research this topic is dated and more research needs to be conducted based on residence hall architecture and its influences on social interaction.**

Few studies on residence halls have been performed in the past 10 years focusing on social interaction or sense of community (Brandon et al., 2008; Delvin, 2008; Rutledge, 2012). Much of the research on this topic is dated and today's college students are very different than they were 50 years ago. The student population is becoming more diverse, having higher expectations, and has had different societal influences. The "millennial" (born 1977 to 1985) generation is very tech savvy compared to previous generations (Howe & Strauss, 2000), so it is important to take that into consideration when designing residence halls for a new population of students. Research on this topic further could assist university administrators in providing the best living space as possible since students spend a large amount of time in the residence halls.

2. **Social media should be taken into consideration when further researching social interaction in residence halls.** Social media has become part of the current student population's lifestyle and has affected how residents interact within the

residence halls. Fifty years ago residents may have had to walk to someone's room to see if they are available instead of picking up a cell phone to text them. According to Phillips (2009), when on preference of face-to-face communication or electronic, millennial students chose electronic. Often students will come into the residence halls with headphones on and not interacting with anyone when proceeding to their room. Social media plays a large role in society today and should be taken into consideration when conducting future research on this topic.

Summary

This chapter presented the discussion of the quantitative results on research at a mid-sized Midwestern University focusing on residence hall floor plan type and its relationship with quality of social interaction, social interaction among students, sense of community, retention, and overall perceived level of satisfaction. Relevant literature suggested that residence hall floor plan type had a relationship with social interaction but much of the research was dated. A survey was created to assess the independent variables relationship with floor plan type and administered to students living in the residence halls. After an analysis of the data, the results indicated a significant difference between residence hall floor plan type A and B. Floor plan type A was a traditional style hall with linear double occupancy rooms. The two rows of linear rooms were separated by a hallway with a center core including the floor lounge, stairwells and community bathrooms. Floor plan type B was a traditional style hall with rooms all along the edges of the building creating a rectangle around the kitchenette, lounge and bathrooms. Two of the halls had community bathrooms and one had recently been renovated to semi-private bathrooms. This could be due to residence hall floor plan type A had two parallel

hallways that separate residents from side of the floor and the other. Residence hall floor plan type B had hallway circulation that went around the floor plan in a rectangle, which promotes student interaction more than floor plan type A. Based on the results, recommendations were made to professionals to assess current residence hall types and to researchers to further investigate residence hall floor plan type relationships in order to create living spaces with high student satisfaction and promote healthy social interaction among students.

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Appendix I: Informed Consent

Electronic survey informed consent:

Hello EIU Resident,

You are invited to participate in a research study that focuses on the relationship of residence hall floor plan design and social interaction, community, retention, and overall satisfaction. This survey is being conducted as part of an assignment for the course CSD 5950, Thesis and Research, as a requirement for the Master's of Science program in College Student Affairs here at Eastern Illinois University. Dr. Richard Roberts is the course instructor and I, Cassandra James, am the Principle Investigator on the project.

This survey should take approximately 15 minutes to complete. Your decision to participate is completely voluntary. You have the right to terminate your participation at any time without penalty.

Your participation in this research will be kept confidential. Information from this research project will be shared with administrators on campus. Because your participation in this study is critical, if you complete the survey you will be in a drawing to win dining dollars valued at \$50, \$25 and \$10.

Your decision to participate, decline, or withdraw from participation will have no effect on your current status or future relations with Eastern Illinois University.

By clicking on the link, you agree to participate voluntarily in all aspects of this study, understand that you have the option of removing yourself from the study at any time and give your approval of all findings to be enclosed within the research. Here is the link to the survey:

[Insert link]

If you have any questions for the researcher, feel free to contact: Cassandra James by phone at (217) 581-7694 or by email at cljames2@eiu.edu or Richard Roberts (Faculty Supervisor) at (217) 581-2400.

If you have any questions or concerns about the treatment of human participants in this study, you may call or write: Institutional Review Board, Eastern Illinois University, 600 Lincoln Ave., Charleston, IL 61920, Telephone: (217) 581-8576, E-Mail: eiuirb@eiu.edu.

Thank you in advance and have a great day,
Cassandra James

Appendix II: Survey

Please answer the following demographic questions about yourself.

1. Gender:

2. Current Age:

3. Race/ethnicity:

4. Class level:

- Freshman
- Sophomore
- Junior
- Senior
- Graduate Student

5. Current residence hall living in:

- Andrews
- Douglas
- Ford
- Lawson
- Lincoln
- McKinney
- Pemberton
- Stevenson
- Taylor
- Thomas
- Weller

6. Floor you live on in your residence hall:

7. Semesters that you have lived in the residence halls:

- First semester
- Two
- Three
- Four
- Five
- Six
- Seven
- Eight
- More than eight

8. Which student organizations are you currently involved in? Check all that apply:

- Academic organization (English club, Spanish club, etc.)
- Athletic team
- Hall council
- Intramurals
- Greek organization
- Multicultural organization
- Political organization
- Pride
- Religious organization (Cru, Muslim Students' Association, Unity Gospel Choir, etc.)
- Residence Hall Association or NRHH
- Service Organization (Habitat for Humanity, Big Brothers Big Sisters, etc.)
- Other _____

9. Are you the first in your family to attend college?

- Yes
- No

Please answer the following questions about your residence hall floor plan type (page 1 of 3).

10. Living in my residence hall floor has allowed me to make new friends that would have been difficult to meet on campus otherwise

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Response:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. The layout of my residence hall floor plan allows me to go straight to my room without passing a main lobby

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Response:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. I can recognize most of the people who live on my floor

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Response:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. My college experience has been positively impacted by living on campus

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Response:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. I'm uncomfortable meeting new people

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Response:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. I think the design of my residence hall floor plan has helped encourage interaction among the students who live here

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Response:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. I think my residence hall floor is a good place for me to live

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Response:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. I interact with other students in my residence hall floor through programs and activities planned by my RA or Hall Council

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Response:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. I plan to live on campus next year

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Response:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

28. I interact with other students in my residence hall floor
 Strongly Disagree Disagree Neutral Agree Strongly Agree
 Response:

29. I like the people that I meet in my residence hall floor
 Strongly Disagree Disagree Neutral Agree Strongly Agree
 Response:

Please answer the following questions about your residence hall floor plan type (page 3 of 3).

30. It's easy for me to make friends
 Strongly Disagree Disagree Neutral Agree Strongly Agree
 Response:

31. I enjoy interacting with other students in my residence hall floor plan
 Strongly Disagree Disagree Neutral Agree Strongly Agree
 Response:

32. I am satisfied with the overall layout of my residence hall floor plan
 Strongly Disagree Disagree Neutral Agree Strongly Agree
 Response:

33. I would consider myself an extravert
 Strongly Disagree Disagree Neutral Agree Strongly Agree
 Response:

34. My Resident Assistant has played a large role in connecting me with other residents on my floor
 Strongly Disagree Disagree Neutral Agree Strongly Agree
 Response:

35. Some of my closest friends are the people I have met on my floor
 Strongly Disagree Disagree Neutral Agree Strongly Agree
 Response:

36. I like the fact I can meet diverse people in my residence hall floor
 Strongly Disagree Disagree Neutral Agree Strongly Agree
 Response:

37. I feel at home in this residence hall floor
 Strongly Disagree Disagree Neutral Agree Strongly Agree
 Response:

