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The Influence of Campus Facilities on the Satisfaction and Retention of Students in a Higher Education Setting

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The Influence of Campus Facilities on the Satisfaction and Retention

of Students in a Higher Education Setting

by

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Abstract

The goal of this quantitative study was to provide insight into the influence of facilities on satisfaction and retention of students in a single higher education setting, St. Cloud State University (SCSU). I used a survey research design with current undergraduate and graduate students to examine relationships among various aspects of facility design, student satisfaction, and student intention to persist to graduation. The survey was used to explore (a) the influence of specific campus facilities on students' current level of satisfaction and intention to continue enrollment; (b) specific types of facilities most affecting student choice and satisfaction; and (c) how student perceptions, expectations, and satisfaction were related to various student demographic characteristics. The questionnaire also was used to gather the following student demographic information: (a) student classification (i.e., year in school), (b) major area of study, (c) housing status (i.e., on or off campus), (d) grade point average, (e) gender, (f) race and ethnicity, and (g) age. These individual characteristics were important in assessing how student perceptions, expectations, and satisfaction of facilities were related to various student characteristics. As established by this research, the availability of essential facilities (e.g., academic, residential life, athletics, recreation, student unions, libraries, and attractive campus) plays a part in student satisfaction, engagement, and, ultimately, academic success and retention. Specifically, academic and library facilities were highly ranked by respondents (87% and 86%, respectively) as important or very important for continued education (retention) and satisfaction. Sixty-four percent of respondents agreed SCSU provided them with an environment of accommodations and inclusion in which they felt a sense of satisfaction that their education goals were being met as they worked toward completing their degree programs. Demographic details of these two critical questions and all other survey responses are described in Chapter 4.

Keywords: facilities, technology, higher education, universities, satisfaction, retention, persistence, environment.

Acknowledgements

I was having lunch with my wife and members of our family some years ago at a restaurant in Chicago, Illinois. After the meal, we were presented with fortune cookies, which I opened to a note, "Education is Opportunity." We began talking about all the opportunities education provided each of us at the table and agreed with the statement. I was working at Creighton University in Omaha, Nebraska, at the time and had spent the vast majority of my career working for higher education institutions. I knew the truth of what an opportunity education is because I chose to live and work every day by that same pronouncement because of a lesson I learned from an early age.

I watched my parents, both 40 plus years of age, studying their respective coursework at the dining room table, this after working long hours to provide my seven sisters and me with a home, hearty meals, and educational choices starting in K–12. I was fortunate in those early years to have parental mentorship that taught me lessons through positive action rather than being dictated as demands. My life, in many ways, has been charmed. There have been struggles and tragedy certainly, but meeting my life partner, my spouse of nearly 47 years, Michelle, was a gift that I will always be grateful for. Together, we raised two children, and now we monitor the early lives of three beautiful grandchildren. Michelle has provided support and encouragement for my higher educational journey during the past 25 years, using an approach similar to that of my parents. By providing me with guidance and encouragement, while pursuing her own career efforts and those of our children, she has shown me that anything is possible. None of what I have accomplished educationally, professionally, or spiritually would be possible without Michelle's love and support.

As I write this acknowledgement, I think back to all the people who have supported my family and me. It goes beyond my educational pursuits, but many special people have given me encouragement and sustained me, some with kind words they may not even remember offering; others (e.g., employers) provided mentorship opportunities that enabled personal and professional growth. The interaction, relationships, and experiences remind me of a book written by Mitch Albom, *The Five People You Meet in Heaven*. All of us need to realize the impact we have on each other and what the take-away may look like. Through it all, I have been privileged to continue seeking knowledge to the point that I now stand ready to earn a doctoral degree.

I would like to thank my advisor, Dr. Rachel Friedensen, who has provided me with the encouragement necessary to continue working toward my goal of lifelong learning. Members of my dissertation committee—Dr. Friedensen, Dr. Phyllis Greenberg, Dr. Emeka Ikegwuonu, and Dr. Steven McCullar—have all provided their expertise for my benefit, and they each need to know the deep gratitude I will carry with me for their inspiration and kindness.

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Chapter 1: Introduction

Higher education research literature has suggested that well-designed and maintained facilities influence the decisions of college students to select and remain enrolled in a college or university. Survey research by June (2006), and reported by the Association of Higher Education Facilities Officers, found 66% of student respondents were extremely or very satisfied with facilities on their campuses. The value of satisfaction is derived in part from the student experience, the reputation of the institution, and future employability (McLeay et al., 2017). Recognizing and ranking the facilities students require can help university leaders allocate available funding to enhance satisfaction and retention. Knowing student needs and attracting the greatest number of new students can enable university leaders to "positively impact [those] efforts" (McDonald, 2019, p.17) with construction and remodeling decisions based on data collected directly from customers (i.e., students).

Statement of the Problem

Higher education leaders must continually balance competing budgetary demands in fulfilling the multifaceted mission of their institutions. The recruitment, satisfaction, and retention of students is paramount to maintaining viability as an institution. The university goal of providing satisfaction begins, in a real sense, before students arrive on campus to begin their studies. Providing information (e.g., the cost of attendance) is a step toward transparency and ideally, enhanced satisfaction. Federal law (20 USC § 1015a) requires transparency in college tuition for consumers and has been in effect since January 3, 2012. Since that date, consumers (i.e., students) have had access to data detailing the cost of attendance. St. Cloud State University (SCSU) has made this information available as mandated but has included the information as

part of recruitment efforts through the university website and other formats. This transparency is what Davis et al. (2017) referred to as demystifying tuition. Students can now look at detailed costs of tuition, study materials, fees, room and board, and estimated miscellaneous costs of attendance. Unfortunately, mandatory fees outlined in recruitment fliers and listed on university websites can lack clarity and include "visually cluttered tables" or "ambiguously labeled fee categories" (Davis et al., 2017, p. 35). Fees and tuition rates continue to increase (Ott, 2009) with the net effect being the cost of attendance has continued to increase aside from any posted cost of tuition (Ma et al., 2017).

From a peak funding calculation in 1980, the state of Minnesota reduced higher education allocations by 55.8% in 2011. According to Mortenson (2014), it is possible the state would be totally disinvested in higher education by 2037. At SCSU, the combination of declining state support and a shrinking student population does not bode well for the future. Student enrollment at the university has declined from a high of 18,319 in 2010–2011 (Donnay, 2011) to 10,401 in 2021–2022 (Kunkel, 2022), a 43% decline. Unfortunately, the downward trend has yet to subside. Such a dramatic enrollment and first-year experience (FYE) decline over this 12-year period should be a wake-up call to university leaders to do everything possible to increase enrollment through enhanced student retention—including addressing the role facilities play in student satisfaction.

Student expectations in the current competitive higher education market are much higher than for those who attended college 20–30 years ago (Lawton & Ivanov, 2014). Such higher expectations help explain why students' desire for comfort and convenience may differ from their parents, who may have attended college many years earlier during the boom years of

college enrollment. However, parents often have similarly high expectations as their children because they also have come to expect customer service at a high level (Lawton & Ivanov, 2014). Reynolds and Valcik (2007) found students had divergent interpretations and judgments about institutional facility characteristics based on various demographic characteristics. Knowing specifically what those varying interpretations are may be very helpful in student recruitment, retention, and satisfaction.

Understanding recruitment of potential students is paramount to economic survival, current university leaders have often focused on methods of attracting new students to campus (Marcus, 2017), sometimes at the expense of investing in student satisfaction and retention. Smaller college campuses are closing their doors or looking to partnerships with technical and trade schools to maintain viability. According to Marcus (2017), college leaders need to take a closer look at student survey responses and take quick action. If students want a service or academic feature that will increase satisfaction, university leaders need to move forward as quickly as possible.

According to Alexander and Drumm (2016), historically, a process of accessing a return on investment was an underused mechanism for determining facility program need and usage. Thinking strategically and analyzing return on investment was not on the radar for some university administrators when state funding began trending downward and students began exploring all the college options set before them. Institutions of higher education were not aligned to move quickly when the feast turned to famine. If students and parents do not feel they are getting top-tier service, they will look elsewhere and spend their money with a competitor (Suttell, 2007).

Purpose of Study

A Noel-Levitz (2012) survey of 55,000 students indicated "more than half of all 1st-year students considered campus appearance important" (p. 3). The Noel-Levitz research was reinforced by Eckert (2012), who found facilities and grounds were often an influential consideration in retention and satisfaction. Interestingly, when the Noel-Levitz (2012) survey data were stratified by demographic benchmarks, facilities satisfaction data indicated females were more satisfied than males, 58% and 52%, respectively.

Additional research by Ruffalo Noel Levitz (2018) showed overall student satisfaction dropped slightly during their years at the university—59% for 1st-year students, 56% for 2nd-year students, 55% for 3rd-year students, and 54% for 4th-year students. The influence of race and ethnicity showed African American, Asian American, and Hispanic students reported lower satisfaction levels than White students, 46% to 60%, respectively. These data points provide university leaders with useful information for working toward improved satisfaction benchmarks.

The purpose of this study was to examine the influence of campus facilities on student satisfaction and retention at SCSU. A survey research design with enrolled students was used to explore (a) the influence of campus facilities on students' current level of satisfaction and intention to continue enrollment; (b) the specific types of facilities most affecting student choice and satisfaction; and (c) how student perceptions, expectations, and satisfaction are related to various student demographic characteristics.

Research Questions

This study provides student-based information related to facilities that could influence policy and budgetary decisions. Gauging student perceptions of and satisfaction with campus facilities can be an important piece of future retention goals of the university. Therefore, the following research questions guided this study:

1. What is the level of satisfaction among current university students with various aspects of campus facilities?

2. What specific aspects and types of facilities have the greatest influence on student satisfaction and intention to persist to graduation?

3. How do satisfaction and intention to persist vary based on gender, housing status, ethnicity, class status, program of study, nationality, and age?

Methodological Overview

The purpose of this quantitative study was to provide insight into the influence of facilities on the satisfaction and retention of students in a higher education setting. I used a survey instrument with current undergraduate and graduate students at SCSU to examine relationships among various aspects of facility design, student satisfaction, and student intention to persist to graduation.

I designed a survey instrument to explore student opinions of various aspects of facility design to identify any direct influence with facility type and gauge satisfaction levels with campus facilities. The survey was used to explore (a) the influence of specific campus facilities on students' current level of satisfaction and intention to continue enrollment; (b) the specific

types of facilities most affecting student choice and satisfaction; and (c) how student perceptions,

expectations, and satisfaction were related to various student demographic characteristics.

The questionnaire also was used to gather the following student demographic

information: (a) student classification (i.e., year in school), (b) major area of study, (c) housing

status (i.e., on- or off-campus), (d) grade point average, (e) gender, (f) race and ethnicity, and (g)

age. These individual characteristics were important in assessing how student perceptions,

expectations, and satisfaction of facilities were related to various student characteristics.

An analysis of descriptive statistics for each numerical variable on the questionnaire—

including counts, percentages, means, and standard deviations—was conducted with results

listed in table format in Chapter 4. In addition, *t*-tests and one-way analyses of variance were

used to make comparisons of the importance, satisfaction, and expectations variables using

gender, ethnicity, and classification as independent, or grouping, variables. Correlations were

calculated to explore relationships among GPA, levels of importance, levels of satisfaction, and

levels of expectations.

Influence of Campus Facilities on Retention

Most research has supported the idea that facilities play an important role in student

recruitment, but a shift in focus to student retention was also evident in the research literature.

For example, June (2006) found 62% of students indicated the appearance of campus facilities

was an important factor in their college choice decision. June also found 66% of enrolled

students saw their respective campus facilities in a positive light. According to Rullman and Van

Den Kieboom (2012), efforts to retain current students are driving facilities improvements.

Simonson (2006) found students desired the freedom to learn and be taught in multiple formats. According to McLaughlin and Faulkner (2012), redesign, repurposing, and funding of space must become a high priority for students who express "dissatisfaction with traditional classroom lecture classes" (p. 143). Bringing instructors and students together in a collaborative teaching environment—as opposed to large rooms with stadium seating—is driving the need for redesign and renewal for a new generation of students.

An arms race is taking place across the U.S. higher education landscape (Mangan, 2002). Funding for new construction and remodeled facilities—at the expense of maintaining existing assets—is all too common. To distinguish commonalities among academic programs, universities are building architecturally significant facilities in an attempt to set themselves apart (Mangan, 2002). One example of this concept is taking a large footprint and using it for the ubiquitous climbing walls seen at campus entry points (Milton et al., 2020). Such structures are big and flashy and can certainly attract students' attention during the recruitment stage (Kirshstein & Kadamus, 2012).

University leaders have bought into the idea that students want extensive recreational facilities, but research by Reynolds and Valcik (2007) and Tierno (2013) indicated student surveys reported the recreation center, although a visible statement, was not seen as an essential element of the campus infrastructure. Herzog and Valcik (2007) showed right-sized classrooms had a direct influence on student retention and, thus, represented a good investment of university resources. Lopez (2010) estimated the cost of those climbing walls at approximately $100,000. Balanced against the cost of recruitment and retention noted earlier (Donnay, 2019), such a one-time expense might be logical, even if administrators might know the climbing wall will not be

used very often other than on the university website. Spending those same funds on classroom

upgrades might not be as flashy, but it may have a larger influence on student satisfaction and,

ultimately, retention.

Influence of Campus Facilities on Student Satisfaction

The annual blizzard of advertising material, campus tours, and personal calls from

campus students, faculty, administrators, and volunteers' ebbs as the beginning of the school

year draws near. First-year students and their families make an annual migration to the university

campus of their choice. The expenditure of time and resources on recruitment may have been

substantial, but the real work has just begun, both for the students and the university. Now that

students are on campus, one may wonder what strategies are in place to influence their

satisfaction and encourage persistence.

Reynolds and Valcik (2007) conducted a survey of new students asking which facilities

were important or essential for their academic success now that they were on campus. The

university facilities identified as most important in survey responses included residential life,

classrooms with technology, dining accommodations, and laboratories or physical spaces

dedicated to their major field of study. Contrary to popular belief, bigger-is-better did not equate

to student usage or satisfaction. Herzog and Valcik (2007) showed architectural elements such as

windows and smaller classroom size were more important to students and had a positive

influence on grade point average (GPA).

Rullman and Van Den Kieboom (2012) used the term "unintended communication" (p.

181) to describe what students have been told versus what they see once they begin their on-

campus journey. A university that cannot maintain facilities and reduces maintenance staffing

because of a funding shortfall runs the risk of alienating the very students university leaders

fought so hard to recruit and enroll. Unfortunately, students listen to the unintended

communication and ignore any assurance of upcoming improvements, as Rullman and Van Den

Kieboom's (2012) research showed.

At any university campus, it is not unusual to see and hear construction and remodeling

activity, sometimes throughout a student's time on campus. According to Mangan (2002), the

purpose for all the activity is often renewal of existing space to meet competition stresses and to

continue attracting new students, but there is an element of "fixing the broken window" that can

have a positive impact on the campus community. It is also an answer to the unintended

communication syndrome (Rullman & Van Den Kieboom, 2012). Such activity shows students

and their parents the university is committed to staying vital and relevant and instilling

excitement around retention and satisfaction efforts.

Campus Environments and Student Thriving

Creating a campus environment where students can thrive takes careful planning from a

facilities standpoint. A university campus includes facilities, grounds, and hardscape such as

retaining walls, sidewalks, paved plaza, artwork, and lighting. A well-designed and thoughtful

master plan has each of these elements laid out and is designed to accommodate a population of

diverse students (Kaiser & Klein, 2010). Each element draws attention, provides comfort and

accommodation, or provides a measure of safety and overall satisfaction. For students to thrive,

learn, and grow, it is in the university's collective interest to provide a campus physical

environment that shows an ongoing commitment to maintaining these assets. A successful

student environment goes beyond classrooms and study halls to include opportunities for each student to gain a sense of purpose and confidence (Schreiner et al., 2020).

To instill that sense of community and satisfaction, gathering spaces outside the classroom are often designed for sitting and listening to music or enjoying each other's company, which in turn can enhance student thriving, especially for first-year students who are often in an unfamiliar environment. Schreiner (2018) found assisting students to thrive in their sophomore year was just as important. Unfortunately, because many universities are short-staffed, leaders often shift their focus to the next incoming first-year class. The fallout is predictable. Second-year students often feel overlooked and stressed, and their satisfaction levels plummet. In Schreiner's research, one third of the students reported they were barely surviving.

Alexander and Drumm (2016) outlined how master plan elements, such as a university plaza, can provide a space to host events that (a) attract student attention; (b) encourage students to venture outside their study rooms and dormitories; and (c) enable students to gather in groups to talk, listen, and become engaged. A democracy plaza (Goldfinger, 2009) is an example of space dedicated to promoting civic dialog; it is a hardscape that enhances student thriving.

Boylan (2002) offered a quote by Winston Churchill: "We shape buildings; thereafter, they shape us" (p. 111). The quote emphasizes the influence facilities have on individuals and their ability to discover and grow. Facilities matter; they influence student satisfaction, thriving, and retention. Facilities can greatly enhance the higher education experience if they are maintained and meet students' satisfaction expectations.

Scope of Research

I conducted a descriptive, correlational study of current undergraduate and graduate students at SCSU to explore the role of campus facility design and type on student satisfaction and retention. Student demographic information was included to examine differences in student perceptions and satisfaction based on factors such as gender, housing status, race and ethnicity, class status, program of study, nationality, and age. For this study, the university students invited to participate in this stratified sample survey were currently enrolled and at least 18 years of age. A facilities impact survey conducted at the university in 2013 included 509 participants, a response rate of 29% of the target population. A similar survey was developed and administered in June 2022 with questions designed to gauge satisfaction levels and intention to remain enrolled among identified demographic groups.

Assumptions of the Study

The research literature about the influence of campus facilities on student satisfaction and retention has generally supported the conclusion that campus facilities are a significant factor in student college-going choice, ongoing satisfaction, and retention. However, the facility needs of higher education students are as unique as the students themselves. I assumed student perceptions and levels of satisfaction would vary widely. In designing a survey questionnaire, the goal was to assess the influence of facilities on student satisfaction and intention to remain enrolled (i.e., retention).

Positionality

The focus of this study was on the influence of campus facilities on student satisfaction and retention. Many factors influence satisfaction, but this research focused only on the role of

campus facilities on the student experience. As a practitioner of higher education facilities management for the past 30 years, I have firsthand knowledge of facilities and the administrative goal of providing safe, clean, and comfortable facilities where students can learn, grow, develop, and thrive. I believe this research provides very useful information for campus decision makers so, ultimately, the student experience can be enhanced with appropriate attention and resources to campus design and facilities maintenance.

Chapter Summary

In this first chapter, I stated the problem this research addresses—the role of campus facilities in influencing student satisfaction and retention. All institutions of higher education must be attentive to the ways facilities affect students, but this is particularly important for institutions with declining enrollment. I used a survey research design to explore the influence of campus facilities on student satisfaction and intention to remain enrolled among current students attending SCSU, which has a declining enrollment. The results will be helpful to campus leaders in making policy and resource decisions related to campus design, facilities maintenance, and deferral. In the next chapter, I review the scholarly literature on (a) the role of facility types and characteristics in meeting student's needs, (b) the role of facilities in college student satisfaction, and (c) the influence of campus environments on student retention and the ability of students to thrive.

Chapter 2: Review of Literature

There is abundant research on the impact of facilities on student satisfaction and retention in higher education. In this review of literature, I begin with an exploration of student recruitment as an introduction to the main topic of student satisfaction and retention. I also share findings of a survey I commissioned in Spring 2013 (Frank et al., 2013) that explored the topic of recruitment and facility services, which helped lay a foundation for the current study. Because the primary focus of this research was the influence of campus facilities on current student satisfaction, the 2013 findings may have corresponded more with college choice and student retention. In defining and measuring student satisfaction, I focused on the influence of facilities on student satisfaction and retention.

I also assessed the facility needs and conditions—most desired or required by students— that fostered satisfaction of choice and excellence in experience (Han et al., 2018; Stuart, 2012). University recruiters compete for students from an ever-shrinking pool of college-ready applicants (Mortenson, 2014). According to Ruffalo Noel Levitz (2020), the average cost of recruiting a student to a mid-size, public 4-year U.S. higher education institution is $470. At St. Cloud State University (SCSU), approximately 5,400 full-time, first-time undergraduate students apply, 4,600 students are admitted, and 1,300 new students enroll each year (Donnay, 2019). Using the national average expenditure for student recruitment, the university could easily be spending more than $2 million to recruit and retain each entering class. If it can be shown that well-designed and maintained facilities influence student satisfaction and persistence, university leaders could make better budgetary decisions related to those campus facilities, avoid self-

induced emergency repairs, and focus on programs that have a positive influence on retention (Biermiller, 2015).

Research literature has documented the influence of well-designed and maintained facilities on student marketing, recruitment, and initial college choice. Knowing what graduate and undergraduate students desire and expect and any similarities or differences in facilities importance and satisfaction in an educational experience can lead to an initial enrollment decision and, ultimately, to ongoing satisfaction and persistence to graduation.

Facilities Defined

For this research, university facilities were defined as structures, including buildings, grounds, walkways, and hardscapes. Hardscapes include a wide range of structures, including parking, retaining walls, visual art, utility installations, and environmental equipment such as wind generators, and solar collectors.

Facilities by Type

SCSU has several dozen campus facilities that can be divided into the following categories: (a) academic, (b) residential, (c) dining, (d) resource center (i.e., the library), (e) sports, (f) recreational, (g) student union, (h) laboratory research, and (i) support facilities that comprise a wide range of structures including administrative and student support facilities. The campus also includes fusion buildings (Mills & Medici, 2012). These combination or multifunction buildings have been designed or remodeled to house two or more programs or

activities (e.g., residential life and satellite dining facilities, resource centers and academic support departments, and sports and recreational facilities).

According to Lunday (2010), forecasting facilities' needs and seeking alternative funding has driven some of the fusion phenomena. One example found at SCSU is a science, technology, engineering, and mathematics facility constructed in 2013. Within the facility, students and a local research firm use cutting-edge equipment in a collaborative and experiential environment (St. Cloud State University, 2013; Taber, 1995).

Management of Facilities

Managing facilities at a university requires a wide breadth of knowledge, including (a) personnel management, (b) complex fire and life safety systems, (c) budgetary development and administration, (c) customer service, (d) construction management, (e) regulatory compliance, including Americans with Disabilities Act (ADA), and (f) emergency management (Roper & Payant, 2014). Each of these responsibilities has subsystems that require (a) professional licensure, (b) technical training as outlined by Kim and Kim (2020) and Tinto (1997), (c) a willingness to work in teams, and (d) the capability to learn on the job (Reynolds, 2007).

The goal of the facilities department is to maintain each facility to provide a safe, clean, and comfortable area in which to live, teach, learn, and thrive. The responsibility for maintaining facilities and the equipment supporting each structure is assigned to one of the largest groups of individuals on campus with a budget that reflects the size, complexity, and importance of the assignment. One example of this important work is maintaining heating, ventilation, and air conditioning (HVAC) systems used to condition air by exhausting stale air while introducing measured amounts of fresh air (Center for Disease and Prevention, 2021). The work can be

routine, but unbalanced circulation or failed equipment can quickly result in emergency situations.

One primary focus of HVAC systems prior to late 2019 was maintaining carbon dioxide (CO_2) at safe levels by air changes that can be increased during high occupancy periods and decreased during low occupancy periods to save energy. Satish et al. (2012) examined the effect of high CO_2 concentrations on test subjects at 600, 1000, and 2500 ppm (parts per million) of CO_2. Each participant completed a computer-based, decision-making test, and results showed a marked decline in cognitive abilities as room levels of CO_2 increased. The American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE, 2009) recommended an indoor CO_2 level at or below 1000ppm, a standard used in the design, remodeling, and daily maintenance of facilities. One value of indoor air quality (IAQ) and indoor environment quality (IEQ), as outlined by Brink et al. (2020), is that it can benefit student satisfaction and retention.

The critical importance of maintaining IAQ has historically centered around remediation of (a) unsafe CO_2 levels (Satish et al., 2012); (b) volatile organic compounds (VOC) found in paints, flooring, and composite wood products; (c) CO_2, a byproduct of burning fossil fuels; and (d) standard temperature and humidity levels (Kapoor et al., 2021). The onset of the COVID-19 global pandemic added new concerns to the importance of IAQ.

COVID-19 Global Pandemic

In early 2020, when COVID-19 (Centers for Disease Control, 2021) was identified as an airborne virus, standard HVAC operating procedures had to change quickly. These changes deviated from the routine handbook guide but were necessary for the benefit of university students and employees (Roper & Payant, 2014). Safety and comfort were, and have continued

to be, on the forefront of everyone's mind. Browning et al. (2021) and Gressman and Peck (2020) studied the psychological impact of the COVID-19 global pandemic on student populations and developed model recommendations to ensure the safety of students, faculty, and staff—including closing university campuses and providing online course instruction. Because the COVID-19 virus was transmittable via respiration, facilities managers had to develop guidelines based on newly published standards from the Centers for Disease Control (CDC, 2021) and ASHRAE (2019) for enhanced equipment maintenance and safe operation procedures.

The years of working to minimize air changes through sophisticated controls and mixing fresh air with return air were suddenly put on the back burner to assure an abundance of clean fresh air was being supplied into occupied spaces to minimize exposure to the COVID-19 virus. Historically, a typical HVAC system would mix return air at 90% with outside air measured at 10% (ASHRAE, 2009). The 90–10 conditioned air mix was considered a minimum level but could be adjusted as needed. The goal is always to maintain a safe environment while minimizing the energy required to condition the facilities (Kim et al., 2019). Those 90-10 standards were not necessarily changed during the pandemic, but the CDC did cite ASHRAE (2019) standards as guidelines to minimize risk to occupants of commercial facilities, including educational institutions. Guidelines included (a) flushing spaces with at least three air changes of fresh air during unoccupied periods, (b) upgrading filtration if systems would allow for the air pressure drop, and (c) providing portable air filtration units in classrooms as necessary.

Throughout my facilities management career, the utility budget, of which energy (i.e., fuel) is the largest part, has been secondary only to dedicated funding for wages and benefits of

the university facilities department. As reported by Roper and Payant (2014), the COVID-19 global pandemic caused disruption in energy management plans, but the primary responsibility of the facilities department was not ignored. According to Leal et al. (2021), the high standard of work performed 24/7 by facilities departments during the pandemic was generally recognized and valued by students.

Conceptual Framework

The conceptual framework that guided this research was the interaction students have with well-maintained facilities, which are designed to enhance thriving, satisfaction, and retention. The review of literature and previous survey results have indicated campus facilities are important for student satisfaction, and this satisfaction corresponds with positive student retention. Schreiner's (2018) research on campus ecology indicated, if students were not thriving—defined as "being intellectually, socially, and psychologically engaged in the college experience" (p. 10)—the university risked losing the students they fought so hard to recruit. Schreiner (2018) concluded campus leaders should remove any barrier to student thriving and create and maintain a campus environment with well-appointed facilities, classrooms, and laboratories that (a) enhance students' studies, (b) promote interaction with peers and instructors, and, ultimately, (c) strengthen students' career opportunities. Promoting a campus environment where all students thrive, are satisfied, find their niche, and want to continue their education was the goal of this research. Facility elements that promote student–environment interaction include well-designed facilities that emphasize attributes student's desire. Strengthening the bond of community in an ecologically inclusive environment promotes an organization of support (Schuh et al., 2017).

Figures 1 and 2 represent findings from the survey I commissioned in Spring 2013 (Frank et al., 2013). Findings were based on 509 student survey responses. The frequency, percentages, and demographic details are detailed in Appendix A. These data are included to enhance the literature review and to provide some comparative data for the current research.

Figure 1

Facilities Influenced Choice to Attend
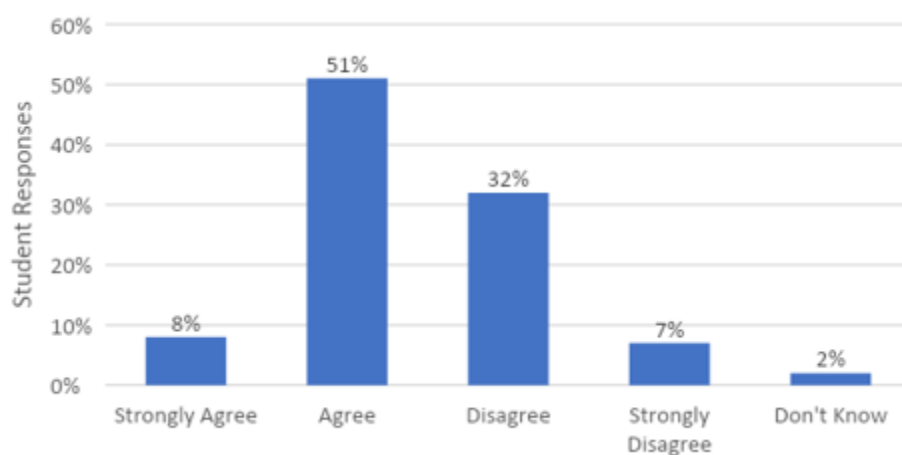
The data in Figure 1 indicate 59% of survey respondents agreed facilities influenced their decision to enroll at the university. This finding was congruent with research by Steelcase Education Solutions (2014) and Hesel (2004) who found 51% and 65% of students, respectively, indicated campus facilities were an important factor in their college choice decision. A Ruffalo Noel Levitz (2018) report explored the correlation between choice to attend and ongoing satisfaction, finding 64% of students at public 4-year universities were satisfied with their choice to attend and intended to graduate at that institution. When stratified, the data from 2013 showed females were more satisfied than males, 58% and 52% respectively, and overall satisfaction dropped slightly during the years at the university (Ruffalo Noel-Levitz, 2018). Satisfaction rates

were 59% for first-year students, 56% for 2nd-year students, 55% for 3rd-year students, and 54% for 4th-year students. African American, Asian American, and Hispanic students reported lower satisfaction levels (46%) than White students (60%). Data such as these can be used by university leaders to work toward improved satisfaction benchmarks.

As shown in Figure 2, 86% of students surveyed in 2013 strongly agreed or agreed that they viewed facility conditions (well-maintained) in a positive viewpoint. Reynolds (2007) found the overall condition of campus was rated positively by 66.9% of student participants, and June's (2006) research found a 62% positive response rate. Students surveyed in the 2013 study appeared to see campus facilities in a positive light, with a positive rating more than 20% higher than other academic research models.

Figure 2

Quality of Campus Facilities
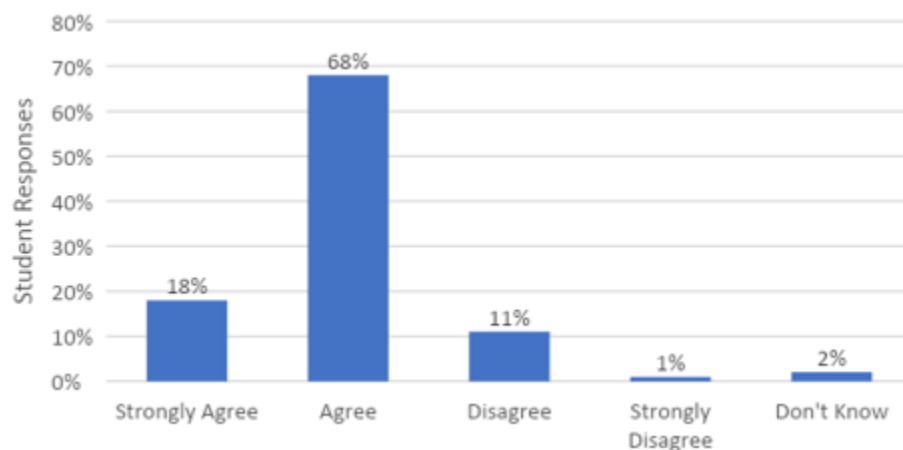
Facilities and Student Satisfaction

Student satisfaction can be assessed through student surveys, which is one way to stay ahead of the curve in the competitive higher education market. There also needs to be a

concerted effort to improve the student experience (Ruffalo Noel Levitz, 2019), including using national data for information on effective strategies with the targeted student market. According to Ruffalo Noel Levitz (2019), if a university is not constantly moving forward, it is just standing still.

As Yang et al. (2013) outlined, survey feedback clarifies student perceptions of classroom spaces (e.g., asking students if the room was hot or cold, humid or dry, dark or bright). With this information, facilities managers can calculate the return on investment from a computerized maintenance management system (CMMS) for repairs and upgrades. Evaluating square footage costs in this manner facilitates discussions that can ultimately support current or future programs in each space and improve measurable satisfaction and retention levels. With that information in hand, projects can be prefunded and construction schedules can be accelerated with efforts duplicated across campus to maximize student satisfaction by limiting deferred maintenance (June, 2003).

When asked about campus facilities they find most important, students tend to identify facilities and programs in their field of study (Rands & Gansemer-Topf, 2017). According to Meeks et al. (2013), students typically identify and are satisfied with well-appointed facilities, classrooms, and laboratories that (a) enhance their studies, (b) promote interaction with peers and instructors, and, ultimately, (c) strengthen their career opportunities. Facilities that contribute to high levels of satisfaction and retention are often cited as important in survey responses. Paul and Pradhan (2019) found student satisfaction with facilities was based on the intangibles of ventilation, lighting, and cleanliness of facilities and how the service was delivered. According to research by Senior et al. (2017), providing personal service creates loyalty to the university.

Santos et al. (2020) found personal service was the best indicator of overall student satisfaction well past graduation.

Dalgarn (2001) and Kampf and Teske (2013) found a correlation between recreation centers and student satisfaction. Kampf and Teske also found these facilities and programs, if open to the local community, could enhance the town and gown relationship and influence first-year students' decisions to remain at the university and persist through graduation. The collaboration partnership can be extended as a means of reducing deferred maintenance. Gardner (2018) outlined the benefit of private development on college campuses—a concept that was unheard of 20 years ago but has become a necessity as university campuses work to recover from years, even decades, of deferring capital improvements and facility maintenance.

University students use recreational and organized sport facilities for various purposes (e.g., specific team training, physical therapy, and personal recreation). There is benefit in providing multiuse facilities that bring students, faculty, coaches, and the public into one space to build a cooperative spirit (Fine et al., 2016). According to Dalgarn (2001), progressive universities have used such facilities and their attributes to encourage students and staff to bring other groups to campus to create community.

According to Bulger et al. (2016) and Gou et al. (2018), student preference for recreational sport facilities—and a host of other diverse facilities offerings—also influences student decisions to engage in campus activities. As noted previously, student preferences for facility needs are influenced by program of study, but they also include status of onsite residency and registered involvement in student life programs, including recreational sports or athletics.

According to Kinnaman (2012), the 62% factor mentioned in the June (2006) report increased to 73.6% for facilities that were "related to [students'] majors" (p. A27).

Research has shown facilities have an influence on satisfaction. When asked to explain more about how a campus "feels," students spoke about a sense of comfort and belonging (Hall, 2006). Facilities personnel have contended the feeling of comfort was a direct result of adequate planning, thorough maintenance practices, and precise control of the IAQ (Hall, 2006; Schibuola et al., 2018). According to Tinto (2017), students want to persist and work toward graduation. Persistence begins with that feeling of comfort and fitting in at a place with which they may be unfamiliar. If facilities managers can provide a safe, clean, and comfortable space for students to live, learn, and study, there is clearly value in the process of meeting student expectations (Braxton, 2019), a value in satisfaction.

To stay competitive, research and partnerships are key indicators for university administrators to make timely and strategic decisions. A good strategy should aim to enroll a diverse group of well-prepared students (Bejou & Bejou, 2012). A good facilities plan should be part of an effective marketing strategy (Alexander & Drumm, 2016). According to Alexander and Drumm (2016), facilities planning should focus on developing facilities to house academic programs that will be drivers of a university's success and student satisfaction 5–15 years down the road.

Facilities and Student Retention

Facilities are a key element to successful retention of college students (Kinnaman, 2012). According to Godfrey et al. (2017) and Rands and Gansemer-Topf (2017), the design and availability of classrooms, laboratories, recreational and sports facilities, residential life, and

dining facilities all play a part in student satisfaction, engagement, and, ultimately, academic

success and retention. Understanding student satisfaction and how it influences retention must be

understood for the university to grow and prosper. The value of satisfaction is derived in part

from the student experience, the reputation of the institution, and future employability (McLeay

et al., 2017). As Dittoe and Porter (2007) suggested, "Educators and designers have been moving

tentatively into uncharted waters. They are gradually adopting new design principles that forsake

the familiar practice of designing space by the numbers" (p. 26). Historically, only about 5% of

college and university facility square footage was dedicated to classroom space. Going forward,

the entirety of the campus, including outdoor areas, should be considered teaching and learning

space. Assigning underused administrative space has become more common. Joan (2013) found

designing space to allow for applied learning, including collaborative workstations, mirrored

real-world work scenarios. Repurposing administrative space, if available, provides students with

physical space to experience administrative practices firsthand (Gibson, 2010).

Although facility design and attributes are important in the retention of students in a

higher education setting, it is only one of the 14 variables Discenza et al. (1985) ranked as

influential in the initial college choice process and ongoing satisfaction after enrollment.

Interestingly, Discenza et al.'s (1985) 35-year-old research is still valid, as confirmed by more

recent research by Chapman et al. (2018), Muhammad et al. (2014), and Parsons (2016). The

general influence of variables is noted here and ranked in order of importance based on Discenza

et al.'s (1985) research:

(1) quality of the faculty,

(2) availability of specific academic programs,

(3) number and variety of courses offered,

(4) academic reputation,

(5) basic cost of attending,

(6) availability of financial aid,

(7) location,

(8) size in terms of students per class,

(9) housing facilities,

(10) social entertainment activities,

(11) campus size,

(12) opinions of friends who are attending,

(13) athletic facilities, and

(14) dining facilities.

Faculty quality and preferred academic programs topped Discenza et al.'s (1985) list. Higher education is ever refining programs of study and, as Parkinson (2013) suggested, "Harnessing innovative technologies that can simply and cost-effectively improve the student experience while delivering secondary cost benefits should, therefore, be high on every university's agenda" (p. 77) because they result in aiding retention efforts. Also, academic reputation was near the top of Discenza et al.'s (1985) rankings. The retention goal of each campus has a direct correlation to reputation. According to Yorke and Longden (2004), "Benefit can accrue from positive public perceptions" (p. 9).

Although housing ranked lower than several other categories in Discenza et al.'s (1985) list, there has been considerable empirical evidence that satisfaction and retention are enhanced

with the availability of on-campus housing (Levey et al., 2020). According to Schudde (2011),

"Living on campus increases student retention" (p. 581), and findings "suggest that initiatives

enabling more first-year undergraduates to live on campus could increase the retention of first-

year students" (p. 599). Once students are on campus, university leaders need to focus on

assisting each individual student to ensure they are working toward graduation (Stewart, 2012).

According to Roberts (2018), higher education institutions that involve departments and staff

from across campus to assist in retention efforts have found success.

Campus facilities specific to the cultural needs of the students ranked near the bottom of

Discenza et al.'s (1985) list. However, more recent research by Johnson et al. (2014) emphasized

the importance of "campus racial climate in persistence decisions that support inclusion of these

constructs in future retention efforts" (p. 95). Facilities used for cultural awareness and

immersion efforts can also benefit retention and overall satisfaction with the university

experience. According to Lau (2003) and Lei and Yin (2020), universities not focused on

retaining students risk losing underrepresented student groups to their competitors in the highly

competitive higher education market.

According to Fujita (1994), "[Higher education institutions] should have facilities that

students want and would like to use" (p. 20). Tinto (2006) studied student persistence and

retention for decades and concluded student engagement, particularly for first-year students, was

one of the strongest predictors of student retention. Residential life facilities can promote student

satisfaction if they have been constructed or remodeled with well-appointed study areas designed

to bring students out of their living areas to engage with each other. The open-classroom

concept, described previously, has similarly been implemented to bring faculty and students

together to engage with one another. Seidman (2005) suggested "demographic and economic shifts have accounted for much of the increased attention to retention" (p. 10). Schudde (2016) found mandatory campus residency for first-year students was a primary factor in the critical first- to second-year retention rate and, ultimately, persistence to graduation.

Bejou and Bejou (2012) recognized universities have many competing challenges, none of which can be ignored. Strong first-year student programs are important, but satisfaction and retention efforts across the entire university experience are equally important. According to Tinto (1997), two factors known to have a positive impact on retention are (a) innovative and engaging classroom instruction and (b) faculty and staff training. A student's lack of skill and motivation is no longer considered the primary cause of student departure. According to Braxton (2019), the classroom experience is paramount to student learning and persistence. Open classrooms and an engaging teaching and learning process are vital for student satisfaction and retention.

Regular financial audits provide data needed to redistribute funds to maintain critical academic programs and the facilities where they are housed. In 2012, Kirshstein and Kadamus estimated, by 2015, one quarter of all higher education facilities in the country would have capital improvement needs that exceeded 50% of their campus infrastructure value. There has been consensus in the literature that decisions must be made to combat these stark realities by (a) documenting facility improvement needs, (b) forecasting funding allocations, and, where appropriate, (c) designing well-appointed energy saving facilities to replace older inventory.

Documenting Facility Improvement Needs

Reynolds (2007) and Reynolds and Valcik (2007) indicated university leaders have adopted CMMS to document the value of facilities and the assets within. A robust CMMS has

the capability of issuing work orders to technicians who record labor, parts, and material costs. These systems can (a) issue work orders for routine maintenance activity such as replacing HVAC filters, (b) record utility costs, and (c) track problematic failure rates. This technology helps maintain accurate records of deferred facility maintenance costs.

Classroom Transformation

Beichner (2008) and the Center for Facilities Research (CFaR, 2014) recommended open classroom design—a staple of high school classrooms—as a welcoming element in the transition to a higher education environment. The benefits of the open classroom approach are many, but one is the inclusive nature of such arrangements; a well-designed space gives students a sense of community (Gou et al., 2018). Lei (2010) found well-designed classrooms supported collaborative learning and boost dynamic class involvement. According to Cressy (2011), education that was once the sole property of the instructor is now broadened to include a student engagement element and a "shared responsibility with students, faculty, and staff members all contributing to the campus experience" (p. 1).

According to June (2006), research sponsored and reported by the Association of Higher Education Facilities Officers (2006) found properly designed classrooms enhanced satisfaction and retention efforts. Similar findings from Parsons (2016) showed flexible space, which encourages student and instructor interaction, resulted in enhanced academic outcomes. Need and De Jong (2001) concurred with this understanding after considering "the effects of local study environments on academic achievement, [examining the] processes occurring at the level of the university and of the individual, [and by comparing] the academic achievement of students across different course programs" (p. 263). Bergold et al. (2019) considered the spatial

dimensions of the classroom and concluded older, standard, stadium, multitier seating

arrangements negatively affected academic achievement and that students should have options

about where they sit, who they sit with, and the layout of the space. Park and Choi (2014)

referred to the shadow zone theory where students are assigned or choose to sit in the far reaches

of an auditorium classroom, effectively being taken out of any engagement with fellow students

or the instructor. Park and Choi found the practice to be discriminatory.

Knowing students prefer open classrooms, Cressy (2011) and Will et al. (2020) described

the benefit of no front or back row of desks and chairs. Zhao and Kuh (2004) also found student

participation in an open classroom, referred to as a learning community, enhanced academic

achievement and overall satisfaction. When students and instructors have the option to circulate,

collaboration takes place and learning is enriched.

According to Reynolds (2007), higher education students are also influenced by facilities

related to their major (e.g., laboratories, art studios, theaters). New classroom designs that create

active learning spaces encourage participation and collaboration and enhance academic efforts

(Park & Choi, 2014). Beichner (2008) created a concept known as student-centered active

learning environment for undergraduate programs (SCALE-UP) to help students thrive in

classrooms designed with open circulation and student-centered concepts to maximize the

interaction of students and their instructors.

Construction and Space Remodeling

To determine the best value of facilities construction and remodeling requirements, a

coordinated effort must be planned for using empirical data (Chapman et al., 2018). Working

with administrators, faculty, and student groups, facilities managers can then facilitate a master

plan discussion of capital improvements needs. All submitted data are entered in a central

analytical software program, and information is taken back to all the groups involved for

discussion and planning. From there, a plan is developed that is used to communicate and

promote a funding request that will address the facilities projections necessary to support

academic programs.

Vidalakis et al. (2013) found well-maintained facilities are seen by prospective students

in a light similar to newly constructed show-piece facilities; proper maintenance adds value to

student satisfaction and retention. Recent design principles using leadership in engineering and

environmental design (LEED) enhancements have been encouraged for remodeling and

construction of new campus facilities. The LEED design method creates facilities that are

healthy and cost-effective (Edwards & Naboni, 2013) and promote engagement by staff and

students related to environmental concerns. As Erlandson et al. (2019) explained, LEED

certification encourages centrally located kiosks that include HVAC system readings that

demonstrate operational efficiencies and IAQ. Applying LEED principles to facility design can

ultimately act as a satisfaction and retention tool. By demonstrating verifiable savings, increasing

student satisfaction, and creating a safe and healthy environment, administrators are more likely

to approve a proposed project (Golbazi et al., 2020). Kaiser and Klein (2010) found bringing a

LEED document to user groups added a level of credibility to a project.

The process of state funding in public higher education is lengthy, and competition with

peer state institutions can be intense (Han et al., 2018). A state master plan is typically forecasted

5–15 years into the future. This planning effort is ultimately designed to identify campus

enhancement or expansion needs to support programmatic and academic choices for the recruitment, satisfaction, and retention of current and future students (Seemiller & Grace, 2017).

Future forecasting is not an exact science, but calculated projections can still be made. According to the Center for Facilities Research (2014) and Seemiller and Grace (2017), facilities managers should be included in early discussions as partners to collaborate in concept planning for classroom remodeling. Facilities departments include a unique blend of trade and mechanical professionals who can bring years of insight to the preconstruction process by pointing out behind-the-wall issues (e.g., ventilation needs or structural impediments) only in-house maintenance staff would be aware of. Knowledge of this sort, especially in multifunction facilities—brought to the early attention of outside consultants, engineers, and architects—often will keep a project from going over budget or failing altogether.

Chapter Summary

Based on this review of literature, it is clear facilities are important to student satisfaction and retention. Facilities managers are becoming increasingly aware of the importance of providing excellent facilities year-round, as they are often used for revenue-generating conferences and events. Gallagher and Hossler (1987) concluded facility conditions and programmatic fit are important factors in the decision-making process of students considering college options for pursuing their academic studies. As Tinto (1997) noted, innovative and engaging classroom instruction is one key to engaging students. Engaged students are likely to be satisfied and interested in maintaining enrollment through graduation.

Chapter 3: Research Methods

In this chapter, I describe the methods I used to explore the influence of campus facilities on student satisfaction and retention in a higher education setting. By using a survey research design with currently enrolled students, I explored (a) the role of campus facilities in students' current level of satisfaction and intention to continue enrollment; (b) the specific types of facilities most affecting student satisfaction and retention; and (c) how student perceptions, expectations, and satisfaction are related to various student demographic characteristics. Three research questions guided this study:

1. What is the level of satisfaction among current university students with various aspects of campus facilities?

2. What specific aspects and types of facilities have the greatest influence on student satisfaction and intention to persist to graduation?

3. How do satisfaction and intention to persist vary based on gender, housing status, race, ethnicity, class status, program of study, nationality, and age?

Method

To answer the research questions, I used a survey research design to conduct a descriptive, correlational study of current undergraduate and graduate students at St. Cloud State University (SCSU) to explore the influence of campus design and facility attributes on student satisfaction and intention to remain enrolled (i.e., retention). I used student demographic information to examine any differences in student perceptions and satisfaction based on such factors as gender, housing status, race and ethnicity, class status, program of study, nationality, and age.

Survey research is an efficient way to gather information from a predetermined group of people to explore answers to specific questions of interest (Oshagbemi, 2008). Oshagbemi (2008) concluded careful survey development is critical to provide unbiased responses and guard against errors in interpreting responses. Survey results can also add credibility to other scholarly research and help verify the critical importance of well-designed, clean, safe, and well-maintained facilities on student recruitment and satisfaction. The limitations of surveying students in a single higher education institution are outweighed by the relatively large sample size and expected response levels. According to Oshagbemi (2008), there are "merits of a large sample size when using surveys tend[ing] to give it an important advantage as a research method" (p. 13). Larger sample sizes tend to reduce errors and the potential for reporting false-negatives or false-positives. Balances and analyzed against low standard deviation percentages and a p-value threshold of 0.05, the results are therefore statistically relevant.

Questionnaire Design

The questionnaire for this survey was designed to measure student perceptions using both single and multiple question channel means (see Appendix B). The questionnaire was an updated version of a similar 2013 commissioned survey (Frank et al., 2013) conducted for the purpose of verifying the importance of facilities in the recruitment and satisfaction of higher education students (see Appendix A). Unlike the 2013 survey, the new questionnaire incorporated questions about intention to remain enrolled (i.e., retention). The instrument was designed to incorporate a combination of Likert-type scale questions and open-ended questions.

The Likert-type scale questions were intended to measure degree of importance or satisfaction using unique value identifiers that ranged from 1–5 for the importance of facilities

category, 1–5 for satisfaction with facilities category, and 1–5 for the importance of facility type and attributes. The lowest value represented the least importance or least satisfaction and the highest number represented the most important or most satisfaction. The open-ended questions were designed to elicit a variety of responses from participants. These responses were categorized for deeper analysis. Demographic questions asked students to identify their gender, housing status, race and ethnicity, class status, program of study, nationality, and age. Wording of questions about gender, race, and ethnicity followed standard general statistical practices and specific university institutional review board (IRB) policy.

The literature review provided a rationale for the demographic categories incorporated into the survey. Research by Ruffalo Noel Levitz (2018) showed overall student satisfaction drop slightly during years at the university—59% for first-year students, 56% for 2nd-year students, 55% for 3rd-year students, and 54% for 4th-year students. The influence of race and ethnicity show that African American, Asian American, and Hispanic students report lower satisfaction levels than White students, 46% to 60%, respectively. Gender and age were additional demographic categories studied by Ruffalo Noel Levitz (2018), who found students 25 years and older were more satisfied (60%) than students 24 years and younger (56%). Female satisfaction was 60% compared to 52% for male students.

Reynolds and Valcik (2007) analyzed additional demographic indicators, including grade point average (GPA) and gender. Findings showed females had higher GPAs and satisfaction levels than males. Reynolds and Valcik's research also indicated retention levels were related to well-maintained facilities for their program of study and student housing.

Participants

Those individuals invited to participate in the stratified sample survey were

undergraduate and graduate-level degree-seeking students enrolled at SCSU at the time of data

collection and at least 18 years of age. It was important to include nontraditional students,

including older students, in the study, which was why I invited graduate students to participate.

Institutional reports, including the annual common data set, indicate one-size recruitment and

retention efforts do not apply to all groups of students. Satisfaction is, likewise, not consistent

across all demographic groups. Data collection via survey helped identify where student

satisfaction and retention efforts should be focused. The open-ended questions were designed to

provide nuanced details pertaining to facilities that might explain the satisfaction responses. The

questions may also offer insight into the character and unique challenges of a Midwest university

campus that has extreme weather conditions, on-going budget reductions, and a shrinking student

population.

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Data Collection

</div>

I sought the support of staff in the office of analytics and institutional research in

developing and distributing the questionnaire to a stratified random sample of students at or over

the age of 18 based on gender, race and ethnicity, class standing, nationality, defined age groups,

housing status, and program of study. Emails were sent to currently enrolled students with an

invitation to participate in the survey. The responses were then exported into a data file for

analysis.

Procedures

Working with the office of analytics and institutional research, I received training to use the Qualtrics software to develop specific questions related to satisfaction level and perception of facilities design, type, and importance. The survey was designed to represent the student body, stratified by housing status (i.e., on- or off-campus), and weighted by gender and age as necessary. Steps were taken to ensure the student sample mirrored as closely as possible the currently enrolled student demographics.

Data Storage and Protection of Participants

I completed IRB training, an IRB application, and submitted the forms to my academic advisor for review and submission to the IRB. With IRB approval (see Appendix C) and authorization to move forward by my committee, I worked with the office of analytics and institutional research to develop the survey as outlined in Appendix B. Participation was clearly identified as voluntary in the introduction statement, and it was noted that survey respondents may freely choose not to participate or complete the questionnaire. The survey was based solely on the facilities and demographics questions outlined and available for study as part of this research and, ultimately, as part of this dissertation.

All student responses were kept in strict confidence. No individually identifiable information was made available to anyone. The data file was stored in a password-protected computer in a locked office. The survey, once issued, was available to students May 16–June 6, 2022. During that time, responses were protected by a password protected computer before the data was downloaded and issued to me for research analysis. I also took care to password protect the data on any computer.

Data Analysis

I analyzed the data using Statistical Product and Service Solutions (SPSS) software, version 28.0.1.1. I calculated descriptive statistics for each numerical variable on the questionnaire, including counts, percent, means, and standard deviations. Data from the open-ended questions were categorized and converted into numerical form for further analysis. The resulting nominal data were analyzed using counts and percentages.

T-tests and one-way analyses of variance were used to make comparisons of the importance, satisfaction, and expectations variables using gender, ethnicity, and classification as independent, or grouping, variables. Correlations were calculated to explore relationships among GPA, levels of importance, levels of satisfaction, and levels of expectations.

Ethical Considerations

I ensured all ethical guidelines were met for the protection of human subjects. Following the guidelines of the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1979), I sought and received approval of the university's IRB and the support and approval of my dissertation committee to move forward with data collection. As with the Frank et al. (2013) survey, the highest ethical standards in procedures and methods were upheld.

Chapter Summary

In this chapter, I described the survey research methodology I used in this research. I designed a questionnaire to examine current student perceptions of campus facilities at SCSU. The questionnaire examined the importance, satisfaction, and expectations of students regarding a variety of campus facilities. Students were also asked to disclose their classification, gender,

race and ethnicity, and cumulative GPA and were given the opportunity to provide responses to

open-ended questions. The survey was conducted with the assistance of the office of analytics

and institutional research.

Chapter 4: Results

In this chapter, I present survey results from undergraduate and graduate students at St. Cloud State University (SCSU) collected in May and June of 2022. The results included 187 completed surveys from a wide spectrum of students that closely aligned with the stratified model developed to represent the entire student body. The data gathered from the surveys supported previous research and explained the importance of well-designed and maintained facilities. The survey instrument was designed to explore whether facilities had a positive influence on student satisfaction and, therefore, retention. My goal was to examine the role facilities play in student satisfaction through a survey process. This research was guided by three central questions:

1. What is the level of satisfaction among current university students with various aspects of campus facilities?

2. What specific aspects and types of facilities have the greatest influence on student satisfaction and intention to persist to graduation?

3. How do satisfaction and intention to persist vary based on gender, housing status, ethnicity, class status, program of study, nationality, and age?

The data collected during the study were analyzed using descriptive statistics for each numerical and open-ended question on the questionnaire. The research findings suggest various campus facilities significantly influence students' satisfaction and retention levels. Specific demographic details were analyzed and results are provided throughout this chapter in figures and tables.

Demographic Results

On May 16, 2022, an email with a link to an online survey was sent to 2,750 SCSU students—stratified from the student population at SCSU—to explore student perceptions of campus facilities and their influence on levels of satisfaction and retention. The criteria for participation included (a) agreeing to participate, (b) being a degree-seeking student, and (c) affirmation of being age 18 or older. The questionnaires were sent via email to a stratified random sample of enrolled students based on (a) gender, (b) race and ethnicity, (c) class standing, (d) defined age groups, (e) housing status, and (f) program of study (see Table 1). A total of 317 students began the survey, and 187 completed it for a completion rate of 6.8%. The sample closely aligned with the stratified model with one exception. Male students were calculated at 45.84% of the student population chosen to receive the survey instrument, but the percentage of completed survey results for male students was 39%. Findings suggest campus facilities significantly influence student satisfaction and retention levels. Variations in responses were found based on the demographic diversity of the students.

As shown in Table 1, the gender composition of the survey participants was 108 women (57.8%), 73 men (39%), four nonbinary/nonconforming students (2.1%), and two students who preferred not to disclose (1.1%). In terms of race and ethnicity of the responses, the majority of students in the sample identified as White ($n = 109$, 58.3%) followed by South Asian ($n = 17$; 9.1%), African ($n = 13$; 7%), African American ($n = 12$; 6.4%), East Asian ($n = 11$; 5.9%), Black ($n = 6$; 3.2%), Latino/Chicano ($n = 3$; 1.6%), Middle Eastern/North African ($n = 1$; .05%), and American Indian or Alaskan Native ($n = 1$; .05%). Five students (2.7%) identified as other, eight students (4.3%) chose not to answer, and one student (.05%) identified as more than one race.

In terms of housing status, most participants reported living off campus ($n = 157$; 84%) rather than on campus ($n = 27$; 14.4%). Three participants (1.6%) chose not to answer the question. More than two thirds of participants were classified as undergraduate students ($n = 132$; 70.6%) with the remaining classified as graduate students ($n = 51$; 27.3%). Four students (2.1%) declined to answer.

Table 1

Stratified and Actual Demographic Summary of Study Participants (n = 187)

Variable	Frequency	Percentage	Stratified percentage
Gender			
Female	108	57.8	53.3
Male	73	39.0	45.8
Nonbinary	4	2.1	0.8
Prefer not to disclose	2	1.1	0.0
Race or Ethnicity			
African American	12	6.4	5.9
African	13	7.0	5.9
Black	6	3.2	2.8
East Asian	11	5.9	5.6
Hispanic/Latino	3	1.6	4.6
Indigenous/Native American	1	0.5	1.1
South Asian	17	9.1	7.9
White	109	58.3	57.8
Other *	7	3.7	2.7
Prefer not to disclose	8	4.3	4.8
Housing status			
On-campus	27	14.4	14.1
Off-campus	157	84.0	86.0
Prefer not to answer	3	1.6	0.0
Academic status			
Undergraduate student	132	70.6	77.4
Graduate student	51	27.3	22.6
Prefer not to answer	4	2.1	0.0

Note. Students identified as Other included 3 Asian, 3 Hmong, and 1 Norwegian.

Results

Through this analysis, I sought to examine (a) the influence of various aspects of campus facilities on the level of student satisfaction; (b) the specific aspects and types of facilities that have the most significant influence on student satisfaction and intention to persist to graduation; (c) the influence and satisfaction with facility and campus attributes; and (d) how satisfaction and intention to persist vary based on gender, ethnicity, housing status, class status, the program of study, nationality and age.

Included in this analysis are (a) the descriptive results of the research variables, (b) the correlational analysis to show the relationship between variables, and (c) an analysis of variance (ANOVA) to compare means of multiple groups based on demographic information. Twenty-one Likert-type scale questions were included in three categories: (a) importance of facilities, (b) satisfaction with facilities, and (c) importance of campus attributes. Two open-ended questions were also included:

- As a student enrolled at St. Cloud State University, the coursework for your program of study was likely located primarily in a single facility, which had the ideal classrooms for instructions and/or study areas. Please offer one or more facilities that you found on campus that had spaces that were ideal, in your mind, for you to thrive, be satisfied, and persist in your higher education studies and goals.
- If you could make one specific recommendation to the leaders of St. Cloud State University for improving the quality of campus facilities, what would that be?

Students were allowed to provide feedback without restriction including choosing multiple

facilities of choice, which led to 302 responses to the question of ideal facilities and 309

comments provided for the benefit of St. Cloud State University leadership.

As established by Reynolds and Valcik (2007), various campus facilities may have a

major influence on satisfaction and retention levels among the student population and, therefore,

also boost academic success. The open-ended questions provided details that may help explain

why individual facilities influence satisfaction and retention.

Importance of Facilities

Students were asked to rate the importance of various campus facilities on a 5-point

Likert-type scale with 1 = *unimportant* and 5 = *very important* (see Table 2). The campus library

(M = 4.41) and other academic facilities (M = 4.31) were identified as most important by

students and athletic facilities (M = 3.06) as least important. Differences in the relative

importance of campus facilities were found based on classification, residential status, and age.

No differences in perceived importance of various facilities were found among students based on

gender, ethnicity, GPA, or graduate/undergraduate status.

Table 2

Student Mean Importance Scores for Various Facilities

Type of facilities	*n*	*Mean*	*Mdn*	*SD*
Library	187	4.41	5	0.90
Academic facilities	187	4.31	5	0.96
Recreational facilities	187	3.38	4	1.33
Student union	187	3.26	3	1.30
Residential life facilities	187	3.18	4	1.43
Athletic facilities	187	3.06	3	1.45

Students may be influenced to persist to graduation by conducive academic facilities that allow students to thrive academically. Table 3 shows the distribution of student responses about the importance of academic facilities. It is clear students felt academic facilities are very important. Analysis of the responses on the importance of academic facilities showed 97 respondents (51.9%) felt they were *very important*, and 69 (36.9%) felt they were *important*. Ten (5.3%) felt they were *neither important nor unimportant*, four (2.1%) felt they were *somewhat unimportant*, and seven (3.7%) felt they were *unimportant*. 136 respondents (88.8%) felt academic facilities were important or very important. Academic facilities play an important role in maintaining student engagement, satisfaction, and academic success and retention.

Table 3

Importance of Academic Facilities

Response	n	Percentage
Unimportant	7	3.7
Somewhat unimportant	4	2.1
Neither important nor unimportant	10	5.3
Important	69	36.9
Very important	97	51.9
Total	187	100.0

The questionnaire also explored the importance of residential life facilities for students. The distribution of responses is summarized in Table 4. Thirty-eight respondents (20.3%) felt residential life facilities were *very important*, 63 (33.7%) felt they were *important*, 31 (16.6%) felt they were *neither important nor unimportant*, 14 (7.5%) felt they were *somewhat unimportant* (7.5%), and 41 (21.9%) felt they were *unimportan*t. Findings suggest most respondents felt residential facilities were important.

Table 4

Importance of Residential Life Facilities

Response	n	Percentage
Unimportant	41	21.9
Somewhat unimportant	14	7.5
Neither important nor unimportant	31	16.6
Important	63	33.7
Very important	38	20.3
Total	187	100.0

Retention of some college students may be influenced by the importance of athletic facilities. Students rated the importance of athletic facilities, and the results are shown in Table 5. Forty-one respondents (21.9%) felt athletic facilities were *very important*, 42 (22.5%) felt they were *important*, 42 (22.5%) felt they were *neither important not unimportant*, 9 (10.2%) felt they were *somewhat unimportant*, and 43 (23%) felt they were unimportant. The findings of this analysis indicated the smallest total percentage of respondents felt athletic facilities were important or very important.

Table 5

Importance of Academic Facilities

Response	n	Percentage
Unimportant	43	23.0
Somewhat unimportant	19	10.2
Neither important nor unimportant	42	22.5
Important	42	22.5
Very important	41	21.9
Total	187	100.0

Recreational facilities have been cited by various scholars as essential in continued student retention. Student responses about the importance of recreational facilities are presented in Table 6. Forty-four respondents (23.5%) felt recreational facilities were *very important*, 64

(34.2%) felt they were *important*, 33 (17.6%) felt they were *neither important nor unimportant*,

20 (10.7%) felt they were *somewhat unimportant*, and 26 (13.9%) felt they were *unimportant*.

Findings suggest most respondents (57.7%) felt recreational facilities were important.

Table 6

Importance of Recreational Facilities

Response	*n*	Percentage
Unimportant	26	13.9
Somewhat unimportant	20	10.7
Neither important nor unimportant	33	17.6
Important	64	34.2
Very important	44	23.5
Total	187	100.0

Satisfaction and retention of college students may also be influenced by the importance

of the student union. Student responses about the importance of the student union are

summarized in Table 7. Forty respondents (21.4%) felt the student union was *very important*, 52

(27.8%) felt it was *important*, 50 (26.7%) felt it was *neither important nor unimportant*, 18

(9.6%) felt it was *somewhat unimportant*, and 27 (14.4%) felt it was *unimportant*. Most

respondents (49%) felt the student union was important or very important.

Table 7

Importance of Student Union

Response	*n*	Percentage
Unimportant	27	14.4
Somewhat unimportant	18	9.6
Neither important nor unimportant	50	26.7
Important	52	27.8
Very important	40	21.4
Total	187	100.0

Library facilities play a crucial role in influencing satisfaction, engagement, and retention. Students rated the library higher than all other facilities in terms of importance (see Table 8) with 111 respondents (59.4%) indicating the library was *very important*, 56 (29.9%) felt it was *important*, 10 (5.3%) felt it was *neither important nor unimportant*, 6 (3.2%) felt it was *somewhat unimportant*, and 4 (2.1%) felt it was *unimportant* (2.1%). Results suggests most respondents (89.3%) felt library facilities were important.

Table 8

Importance of Library

Response	n	Percentage
Unimportant	4	2.1
Somewhat unimportant	6	3.2
Neither important nor unimportant	10	5.3
Important	56	29.9
Very important	111	59.4
Total	187	100.0

Comparisons of Importance Based on Student Classification

I performed a one-way analysis of variance to examine differences in perceived importance of facilities based on student classification (see Table 9). Significant differences were found in the importance of residential life facilities ($F = 5.81$, $df = 5$, $p < .001$, $\eta^2 = .142$), athletic facilities ($F = 2.49$, $df = 5$, $p = .033$, $\eta^2 = .066$), recreational facilities ($F = 2.88$, $df = 5$, $p = .016$, $\eta^2 = .076$), and the student union ($F = 4.18$, $df = 5$, $p = .001$, $\eta^2 = .106$).

Table 9

Perceived Importance of Facilities by Student Classification

Measure	1st year		2nd year		3rd year		4th year		5th year		$F(5,186)$	η2
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*		
Academic facilities	4.56	.56	4.59	.57	4.51	.64	4.21	.98	3.80	1.36	3.53**	.091
Residential life facilities	3.87	1.07	3.70	1.33	3.56	1.27	2.75	1.44	2.45	1.43	5.81***	.142
Athletic facilities	3.66	1.41	3.22	1.63	3.28	1.26	2.69	1.41	2.85	1.57	2.49*	.066
Recreational facilities	3.97	1.06	3.78	1.31	3.41	1.25	3.02	1.35	3.20	1.44	2.88*	.076
Student union	3.91	.99	3.63	1.31	3.36	1.04	2.75	1.34	3.00	1.56	4.18**	.106
Library	4.72	.46	4.67	.73	4.33	.98	4.21	.96	4.55	.61	2.45*	.065

Note. ***p < .001; **p < .01; *p < .05.

I used Tukey HSD post hoc tests to identify significant differences among student ratings of importance based on classification. The post hoc test confirmed first- and second-year students rated residential life facilities as much more important than fourth- or fifth-year students did (see Table 10). The post hoc test also confirmed first-year students felt recreational facilities students ($M_{1st\ year}$ = 3.93, $M_{4th\ year}$ = 3.04, p = .038), athletic facilities ($M_{1st\ year}$ = 3.57, $M_{4th\ year}$ = 2.72, p = .101), and the student union ($M_{1st\ year}$ = 3.76, $M_{4th\ year}$ = 2.77, p = .011) were more important than did fourth-year students.

Table 10

Tukey HSD Post Hoc Test for Importance of Residential Facilities by Student Classification

		Subsets		
Classification	*n*	*M*	*M*	*M*
Fifth year	20	2.45		
Choose not to answer	12	2.36	2.36	
Fourth year	52	2.77	2.77	
Third year	39	3.58	3.58	3.58
Second year	27		3.69	3.69
First year	32			3.80

Note. First year student mean was significantly higher than fourth year (p = .013) and fifth year means (p = .008). Second year student mean was significantly higher than fourth year *(p* = .053) and fifth year means (p = .026).

Comparisons of Importance Based on Residential Status

One-way analyses of variance were performed to examine differences in perceived importance of various facilities based on residential status (see Table 11), and a significant difference was found in the importance of residential life facilities (F = 13.02, df = 2, $p < .001$, η^2 = .124). The Tukey HSD post hoc revealed students who lived on campus felt residential

facilities were far more important than students who lived off campus ($M_{\text{on-campus}} = 4.30$, $M_{\text{off-campus}} = 2.97$, $p < .001$).

Table 11

Perceived Importance of Facilities by Residential Status

Measure	On-campus		Off-campus		No answer		$F(2,184)$	η2
	M	*SD*	*M*	*SD*	*M*	*SD*		
Academic facilities	4.63	.57	4.25	1.00	4.67	.58	2.09	.022
Residential life facilities	4.30	.87	3.01	1.42	5.00	0	13.02***	.124
Athletic facilities	3.26	1.43	3.06	1.47	3.67	1.53	.43	.005
Recreational facilities	3.56	1.05	3.38	1.38	4.67	.58	1.52	.016
Student union	3.56	1.16	3.26	1.33	4.33	1.16	1.50	.016
Library	4.41	.93	4.41	.89	4.43	1.16	.01	.000

Note. ***$p < .001$.

Comparisons of Importance Based on Age

One-way analyses of variance were performed to examine differences in perceived importance of various facilities based on student age (see Table 12). Significant differences were found in the importance of academic facilities ($F = 3.81$, $df = 3$, $p = .001$, $\eta^2 = .059$) and residential life facilities ($F = 3.50$, $df = 3$, $p = .017$, $\eta^2 = .054$). Tukey HSD post hoc tests showed students age 18–24 felt academic facilities were more important than students age 45 and older did ($M_{18-24} = 4.38$, $M_{45+} = 3.53$, $p = .017$). Students aged 18–24 also felt residential facilities were more important than students age 45–55 did ($M_{18-24} = 3.45$, $M_{45+} = 2.33$, $p = .022$).

Table 12

Perceived Importance of Facilities by Age

Measure	18–24		25–44		45 +		F(3,183)	η2
	M	SD	M	SD	M	SD		
Academic facilities	4.38	.83	4.38	.89	3.53	1.64	3.81*	.059
Residential life facilities	3.45	1.33	3.00	1.53	2.33	1.35	3.50*	.054
Athletic facilities	3.21	1.40	3.06	1.47	2.67	1.59	.87	.014
Recreational facilities	3.45	1.24	3.51	1.41	3.00	1.60	.66	.011
Student union	3.41	1.26	3.21	1.35	2.93	1.53	.93	.015
Library	4.37	.90	4.55	.72	4.20	1.37	1.07	.017

Note. *$p < .05$.

Comparisons Based on Gender

Analyses of variance indicated differences based on gender for the importance of residential life facilities ($F = 3.68$, $df = 3$, $p = .013$, $\eta^2 = .057$) and recreational facilities ($F = 3.18$, $df = 3$, $p = .025$, $\eta^2 = .050$). However, the Tukey HSD post hoc tests could not isolate where the differences were among the groups.

Satisfaction with Facilities

Responses to the questions about satisfaction with various types of facilities strongly suggest well-maintained facilities significantly influence student satisfaction levels (see Table 13). Using a similar Likert-type scale (1 = *very unsatisfied* to 5 = *very satisfied*), students rated their levels of satisfaction with five types of campus facilities. Students were most satisfied with the library ($M = 4.17$) and other academic facilities ($M = 3.75$). All other categories of facilities received mean scores above 5, indicating a fairly high level of satisfaction with campus facilities (see Table 10).

One-way analysis of variance indicated differences in satisfaction with recreation facilities based on student age ($F = 3.63$, $df = 3$, $p = .014$, $\eta^2 = .056$) and with the library based

on residential status ($F = 3.94$, $df = 2$, $p = .021$, $\eta^2 = .069$). However, post hoc analyses did not identify specifically where the differences may be among the groups. No significant differences in satisfaction with various facilities were found among students based on classification, graduate/undergraduate status, gender, residential status, ethnicity, or GPA.

Table 13

Student Mean Satisfaction Scores With Campus Facilities

Type of facility	n	M	Mdn	SD
Library	187	4.17	4	.83
Academic facilities	187	3.75	4	.94
Recreational facilities	187	3.32	3	.95
Athletic facilities	187	3.25	3	.94
Student union	187	3.25	3	.93
Residential life facilities	187	3.25	3	.94

Most students reported being satisfied with campus academic facilities. A total of 121 respondents (64.7%) were *satisfied* or *very satisfied* (64.7%) with academic facilities, 44 respondents (23.5%) were *neither satisfied nor unsatisfied*, 14 respondents (7.5%) were *unsatisfied*, and eight respondents (4.3%) were *very unsatisfied* with the academic facilities of the university. These results indicate most SCSU students were satisfied with academic facilities. Analysis of variance ($F = 6.03$, $df = 2$, $p = .003$, $\eta^2 = .061$) indicated international students ($n = 50$, $M = 4.12$) were more satisfied with academic facilities than U.S. students ($n = 136$, $M = 3.59$).

Residential life facilities can promote student satisfaction levels if they have been well-constructed or remodeled to bring the best out of students. University and college institutions must comply with the Americans with Disabilities Act (ADA) to ensure the proper physical design of facilities to create accessibility to all programs. Student responses about satisfaction

with residential facilities included 69 respondents (36.9%) were *satisfied* or *very satisfied*, 91 respondents (48.7%) were *neither satisfied nor unsatisfied*, 16 respondents (8.6% were *unsatisfied*, and 11 (5.9%) were *very unsatisfied* with the residential life facilities at SCSU. Results indicate respondents were only moderately satisfied with residential life facilities. One-way analysis of variance ($F = 3.11$, $df = 2$, $p = .047$, $\eta^2 = .033$) indicated international students ($n = 50$, $M = 3.52$) were more satisfied with athletic facilities than were U.S. students ($n = 136$, $M = 3.16$).

Athletic facilities also play a key role in promoting student satisfaction levels and retention. Student responses about satisfaction with athletic facilities included the following data. Findings suggested SCSU students were only moderately satisfied with athletic facilities. Seventy-two participants (38.5%) were *satisfied* or *very satisfied* with athletic facilities, 86 participants (46%) were *neither satisfied nor unsatisfied*, 20 participants (10.7%) were *unsatisfied*, and nine participants (4.8%) were *very unsatisfied*.

Satisfaction levels with recreational facilities were comparable to satisfaction with athletic facilities. Eighteen students (9.6%) were *very satisfied*, 57 (31.6%) were *satisfied*, 77 (41.2%) were *neither satisfied nor unsatisfied*, 25 (13.4%) were *unsatisfied*, and 8 (4.3%) were *very unsatisfied*. Recreational facilities can have a significant influence on the level of satisfaction of university students.

It was important to examine the influence of student unions on student satisfaction, which eventually promotes student retention on campus. In this survey, most respondents ($n = 89$, 47.6%) were *neither satisfied nor unsatisfied* with the student union. Thirteen students (7%) were *very satisfied*, 57 (30.5%) were *satisfied*, 17 (9.1%) were *unsatisfied*, and 11 (5.9%) were

very unsatisfied. Because most respondents were *neither satisfied nor unsatisfied*, I concluded

students were only moderately satisfied with the student union.

Libraries also play a crucial role in academic success among campus students. Therefore,

students' level of satisfaction may be influenced by the library facilities available on campus.

Student respondents indicated a high level of satisfaction with the university library. One

hundred, fifty-six respondents (83.4%) were either *satisfied* or *very satisfied* with the library.

Twenty-one students (11.2%) were *neither satisfied nor unsatisfied*, eight (4.3%) were

unsatisfied, and only two (1.1%) were *very unsatisfied*.

Importance of Campus Attributes

Most researchers have established that campus facilities play an important role in

recruitment and student retention (June, 2006). The influence of various aspects of campus

facilities on student retention can be established by exploring the importance of these facilities

for student ongoing satisfaction. Students were asked to rate the importance of seven aspects of

campus facilities when thinking about their ongoing satisfaction with the university: (a) an

attractive campus, (b) technology infrastructure, (c) space for cultural traditions, (d) quality and

condition of facilities, (e) location of the campus, (f) indoor air quality, and (g) safety and

security on campus. Using a Likert-type scale (1 = *very unsatisfied* to 5 = *very satisfied*), the

means and standard deviations of these seven categories are presented in Table 14. The top three

aspects of campus facilities identified by students as most important to their ongoing satisfaction

were as follows:

(1) Safety and security on campus ($M = 4.56$, $SD = 0.69$)

(2) Technology infrastructure ($M = 4.46$, $SD = 0.68$),

(3) Quality and condition of facilities ($M = 4.39$, $SD = 0.77$)

Table 14

Importance of Campus Facilities for Ongoing Satisfaction

Type of facility	n	M	Mdn	SD
Safety and security on campus	187	4.56	5	0.69
Technology infrastructure	187	4.46	5	0.68
Quality and condition of facilities	187	4.39	5	0.77
Indoor air quality	187	4.33	4	0.85
Location of campus	187	3.97	4	0.10
Attractive campus	187	3.97	4	0.93
Space for cultural traditions	187	3.74	4	1.12

Attractive Campus

Attractive facilities in universities can influence new student recruitment, continuing students' level of satisfaction, and student retention. Fifty-three respondents (28.3%) felt an attractive campus was *very important* in their ongoing satisfaction (28.3%), 89 (47.6%) felt attractive facilities were *important*, 32 (17.1%) felt they were *neither important nor unimportant*, five (2.7%) felt they were *somewhat unimportant* (2.7%), and 8 (4.3%) felt they were *unimportant*. Most respondents ($n = 142$, 75.9%) felt the attractiveness of campus facilities was important or very important for the satisfaction levels of campus students.

Analysis of variance indicated a significant difference among students ongoing satisfaction with an attractive campus based on graduate or undergraduate student status ($F = 4.28$, $df = 2$, $p < .010$, $\eta^2 = .049$). Undergraduate students felt an attractive campus was more important to their ongoing satisfaction than did graduate students ($M_{undergrads} = 4.07$, $M_{graduate} = 3.61$, $p = .001$). Differences were also found in the importance of an attractive campus based on gender ($F = 3.34$, $df = 3$, $p = .020$, $\eta^2 = .052$), and residential status ($F = 4.69$, $df = 2$, $p = .010$,

n2=.048. However, the Tukey HSD pot hoc test did not isolate where the differences were among gender, age, or residential status groups. No significant differences were found among groups based on ethnicity or GPA.

Technology Infrastructure

Technology infrastructure can be important to student ongoing satisfaction. Students overwhelmingly identified technology infrastructure as important to their ongoing satisfaction with 172 students (92%) indicating it was *important* or *very important.* Eleven students (5.9%) indicated technology infrastructure was *neither important nor unimportant*, and only four students (2.1%) indicated it was either *unimportant* or *somewhat unimportant*.

Space for Cultural Traditions

Cultural traditions may have a significant influence on the level of ongoing student satisfaction. Most respondents ($n = 126$, 67.3%) felt space for cultural traditions was *important* or *very important* in their ongoing satisfaction. Thirty-seven students (19.8%) indicated space for cultural traditions was *neither important nor unimportant* to their ongoing satisfaction, and 24 students (12.9%) felt such spaces were either *unimportant* or *somewhat unimportant*. One-way analysis of variance indicated a significant difference in the importance of spaces for cultural traditions based on student classification ($F = 3.21$, $df = 5$, $p = .009$, $n2 = .083$). The Tukey HSD post hoc test showed such spaces were more important to second-year students than fourth-year students ($M_{2nd\ year} = 4.15$, $M_{4th year} = 3.95$, $p = .009$). Analysis of variance ($F = 7.33$, $df = 2$, $p = .001$, $n2 = .087$) indicated international students ($n = 50$, $M = 4.24$) felt space for cultural traditions was more important than U.S. students ($n = 136$, $M = 3.59$). Moreover, a difference in the importance of space for cultural traditions based on gender ($F = 4.99$, $df = 3$, $p = .002$,

$n2=.076$), but the Tukey HSD post hoc test did not indicate where those differences were among

the groups.

Quality and Condition of Facilities

Many respondents felt the quality and condition of facilities were *very important* for their

ongoing satisfaction ($n = 95$, 50.8%), and another 74 respondents ($n = 74$, 39.6%) felt it was

important. Only 12 respondents (6.4%) felt quality and condition of facilities were *neither*

important nor unimportant, and six (3.2%) felt they were *somewhat unimportant* or *unimportant*.

It is clear the quality and condition of facilities was important to ongoing student satisfaction.

Analysis of variance ($F = 4.00$, $df = 3$, $p = .009$, $n2 = .061$) indicated significant differences in

the importance of the quality and condition of facilities for ongoing student satisfaction based on

age. The Tukey HSD post hoc test indicated the quality and condition of facilities were more

important for those in the 18–24 age group ($n = 117$, $M = 4.46$, $p = .001$) and in the 25–44 age

group ($n = 53$, $M = 4.30$, $p = .003$) than those 45 years of age and older ($n = 15$, $M = 3.73$).

Location of the Campus

The location of the campus can also influence ongoing student satisfaction. Most student

respondents felt the campus location was *important* or *very important* ($n = 137$, 73.3%). Thirty-

six respondents (19.3%) felt campus location was *neither important nor unimportant*, eight felt it

was *somewhat unimportant* (4.3%), and six felt it was *unimportant*. Thus, location of the campus

was a very important factor in the ongoing student satisfaction. Analysis of variance ($F = 3.83$, *df*

$= 2$, $p = .036$) indicated international students ($n = 50$, $M = 4.20$) felt location of campus was

more important than U.S. students ($n = 136$, $M = 4.00$). An independent samples *t* test indicated a

difference in the importance of campus location based on gender with students who identified as

female indicating campus location was more important than students who identified as male ($M_{\text{female}} = 4.08$, $M_{\text{male}} = 3.66$, $t = 2.53$, $p = .013$).

Indoor Air Quality

Indoor air quality has been cited by Erlandson et al. (2019) as a significant factor in student satisfaction. In this survey, students overwhelmingly responded that indoor air quality was *very important* (49.7%) or *important* (36.9%) to them, 19 respondents (10.2%) felt indoor quality was *neither important nor unimportant*, and only six respondents (3.2%) felt it was *unimportant* or *somewhat unimportant*.

Safety and Security

Students overwhelmingly indicated campus safety and security were very important in their ongoing satisfaction. More than 90% of students rated safety and security on campus as *important* or *very important* with 122 student respondents (65.2%) indicating it was *very important* and 49 (26.2%) indicating it was *important*. Fourteen respondents (7.5%) felt it was *neither important nor unimportant*, and only two (1%) felt it was *somewhat unimportant* or *unimportant*. Analysis of variance ($F = 6.82$, $df = 3$, $p < .001$, $n2 = .101$) and the Tukey HSD post hoc test indicated the importance of safety and security on campus was more important to ongoing satisfaction for female students than for male students ($M_{\text{female}} = 4.73$, $M_{\text{male}} = 4.27$, $p < .001$).

Additional Findings

In addition to the 21 facility and campus attributes questions outlined in the survey, two specific questions pertaining to facilities and attributes that comply with the Americans with Disabilities Act (ADA) were also included in the questionnaire:

- St. Cloud State University (SCSU) is committed to providing reasonable

    accommodations for enrolled students. Based on your perception, do you feel SCSU

    provides reasonable accommodations that are compliant with ADA regulations?

- St. Cloud State University (SCSU) is committed to providing reasonable

    accommodations for enrolled students. Has SCSU provided you with an environment

    of accommodations and inclusion in which you feel a sense of satisfaction that your

    education goals are being met as you work toward completing your degree or

    certification program?

Survey responses provided valuable insight into these two questions (see Tables 15 and

16). Of the 109 responses to the first question, 50 respondents (45.9%) answered *yes*, and only

six (5.5%) answered *no*. However, a significant group of students answered *maybe/unsure* ($n =$

49, 45%), which could mean students required additional details on the subject, thereby

enhancing satisfaction levels. The fact that facilities influence satisfaction and persistence to

graduation may provide administrators the opportunity to showcase facility attributes that relate

to ADA regulatory goals.

Table 15

Student Perceptions of Reasonable Accommodations Compliant With ADA

Response	n	Percent
Yes	50	45.9
No	6	5.5
Maybe/unsure	49	45.0
Choose not to answer	4	3.7
Total	109	100.0

Table 16 provides additional data SCSU administrators could use to improve awareness

of their efforts toward providing an environment of accommodation and inclusion. Most student

responses ($n = 65$, 60.7%) indicated a perception that satisfaction levels were being met.

However, 31 respondents (29%) were unsure if SCSU provided accommodations. Results

indicate well-established academic facilities significantly promote satisfaction among

college/university students.

Table 16

Student Perceptions of Environment of Accommodations and Inclusion

Response	n	Percent
Yes	65	60.7
No	6	5.6
Maybe/Unsure	31	29.0
Choose not to answer	5	4.7
Total	107	100.0

The open-ended question about study and classroom space revealed three campus

facilities were rated as ideal. Student feedback indicated the library ($n = 89$), student union ($n =$

49), and the science building ($n = 27$) were seen as providing space to thrive and be satisfied as

the respondents worked toward their educational goals.

Summary of the Results and Findings

This research examined the influence of various campus facilities on student satisfaction

and retention at SCSU. The research invited a currently enrolled stratified random sample of

respondents to participate in the study. Data collected from 187 complete questionnaires were

analyzed using SPSS. Findings were used to explore (a) the influence of campus facilities on

student's current level of satisfaction and intention to continue enrolment; (b) the specific types

of facilities most affecting student ongoing satisfaction; and (c) how student perception,

expectations, and satisfaction are related to various student demographic characteristics. Based

on student responses to open-ended questions, students consistently identified the campus library

and student union as facilities that provided ideal spaces for gathering and study. Such spaces are

essential for students to thrive, be satisfied, and persist in their higher education studies and

goals.

Chapter 5: Discussion

In this chapter, I summarize findings presented in Chapter 4 and discuss those findings relative to prevailing literature. I also (a) review the study's specific objectives and limitations, (b) discuss implications for practice, (c) provide suggestions for future research, and (d) analyze the implications of study findings on the research and implications of the underlying theory. I close the chapter with a detailed conclusion of this research.

In this study, I aimed to examine the influence of campus facilities on student satisfaction and retention at a public university in the Midwest. Findings resulted from an analysis of responses collected from St. Cloud State University (SCSU) students. These results are crucial in evaluating (a) how the specific objectives were met, (b) the implications of the results on research and practice, and (c) how universities and colleges can improve campus facilities to promote graduate and undergraduate student satisfaction levels and encourage retention to graduation.

Discussion

The discussion of findings is organized around (a) the influence of campus facilities on student satisfaction; (b) the influence of campus facilities on student retention; and (c) how the influence of campus facilities on student satisfaction and retention varied by student classification, graduate or undergraduate status, housing situation, nationality, cumulative grade point average (GPA), gender, age, and race or ethnicity.

Most respondents felt they were satisfied with the various facilities offered by the campus (i.e., academic, residential life, athletic, recreational, student union, library, and attractive campus facilities). These findings mirror Reynolds and Valcik's (2007) findings that established

campus facilities dedicated to a student's major were essential for academic success and for promoting students' level of satisfaction. Moreover, results of this study support conclusions made by Dalgarn (2001) and Kampf and Teske (2013), who established a correlation between recreational centers and student satisfaction.

Campus facilities have a significant role in student satisfaction and motivation to persist to graduation. June (2006) found 66% of enrolled students had a positive perception of their campus facilities, which, ultimately, influenced retention. As the analysis results showed, all campus facilities have been found to have a significant influence on student ongoing satisfaction. Other specific aspects (i.e., technology infrastructure, space for cultural traditions, quality and condition of facilities, campus location, indoor air quality, and safety and security on campus) also influence student intentions to progress to graduation. Student perceptions of the importance of various aspects of campus facilities and their ongoing satisfaction vary based on demographic factors such as student classification, housing status, nationality, cumulative GPA, gender, age group, and race or ethnicity.

Understanding the specific aspects and types of facilities that create high satisfaction levels and, ultimately, intention to remain to graduation is vital information for institutional leaders to manage and develop facilities. Rullman and Kieboom (2012) noted efforts to retain current students drive university facility improvements. Findings are helpful for identifying the specific aspects and types of facilities that influence student ongoing satisfaction and intention to persist to graduation. Findings indicate all aspects of campus facilities significantly influenced student satisfaction levels. Thus, students at SCSU have been provided with a good

accommodation environment and facilities that create a feeling of satisfaction among students and have been designed to promote retention to graduation.

An open-ended question asked students to make specific recommendations to the leaders of SCSU for improving the quality of campus facilities. I chose to categorize the comments pertaining to facilities into five types: (a) facilities improvement (31 comments); (b) parking, campus transportation and walkability (22 comments); (c) food choices (17 comments); (d) safety and security (15 comments); and (e) technology (11 comments). The results of the survey have been reported here only in aggregate form with no disclosure of any personally identifiable information. As such, results of the open-ended questions and the full details of the feedback are not included.

Based on my experience working in higher education facilities management for more than 30 years, including at SCSU, the survey responses in general highlighted standard issues of space conditions, deferred maintenance goals, capital planning challenges, and funding shortfalls. The academic literature, my first-hand experiences, and the feedback provided by student respondents clearly indicate the need for well-maintained facilities with sought-after attributes that transcend local and national institutions of higher education. Influence of Campus Facilities on Student Satisfaction

Campus students may experience various satisfaction levels with campus facilities (i.e., residential life, academics, recreation, athletics, libraries, technology, student unions, and attractive facilities). Satisfaction with various campus facilities may significantly influence overall student satisfaction, which may improve student academic success and lead to greater retention to graduation. Findings indicate nearly two thirds (64.7 %) of respondents were

satisfied or *very satisfied* with the academic facilities provided at SCSU, which corresponded

with findings of Steelcase Education Solutions (2014) indicating 72.1% of students found open-

design classrooms of value to their engagement and satisfaction.

University residential life facilities significantly affect student satisfaction levels

(Hassanain et al., 2010). Although most respondents (48.7%) in this study were *neither satisfied*

nor dissatisfied, 36.9% were *satisfied* or *very satisfied* with campus residential facilities. When

looking at the data, importance of residential life facilities was higher among on-campus

students, ($M = 4.78$, $SD = 1.31$) than with students living off campus ($M = 3.15$, $SD = 1.65$).

These findings are consistent with conclusions reached by Kampf and Teske (2013), who

established that campus residential life facilities that were well maintained and designed in

compliance with Americans with Disabilities Act (ADA) policies had high satisfaction rates,

especially during a student's first years of higher education if they lived on campus. According

to Fleming (2017), facilities can also encourage students to remain at the university and persist to

graduation. Findings suggest well-maintained campus facilities at SCSU promote satisfaction

among college students, which parallel data gathered by Biemiller (2015).

Organized athletic facilities also positively influenced student satisfaction levels, but only

moderately, as 46% of respondents were *neither satisfied nor dissatisfied* and 38.5% were

satisfied or *very satisfied* with the athletic facilities at SCSU. This result corresponds with Fine et

al.'s (2016) findings that positive benefits and satisfaction derive from multiuse facilities for

sporting activities. Although athletic facilities satisfaction levels of SCSU students were evident,

the results were not significant.

Recreational facilities at the institution also played a key role in influencing students' level of satisfaction. Findings indicate 41.2% of the respondents were *neither satisfied nor unsatisfied*, and 31.6 % were *satisfied* with recreational facilities. The results indicate SCSU's recreational facilities moderately influenced student satisfaction. This research finding aligns with Kampf and Teske's (2013) conclusion, as they found a correlation between recreational facilities and student satisfaction.

Student unions and libraries also had a significant influence on student satisfaction levels. Most respondents (47.6%) were *neither satisfied nor dissatisfied* and 30.5% were *satisfied* with the campus student union. Results indicate the student union moderately promoted student satisfaction at SCSU. A significant number of respondents were also satisfied with the library facilities at SCSU, with 83.4% of respondents indicating they were *satisfied* with the library facilities. Well-constructed library facilities that offer students comfort and a sense of belonging in the institution where students can study and excel in their careers greatly influence satisfaction levels and retention (June, 2006; Reynolds, 2007). Attractive facilities at the institution may greatly influence prospective students to select the university and student satisfaction levels. Most respondents (47.6%) felt an attractive campus was *important* in determining student satisfaction.

Influence of Campus Facilities on Student Retention

Various scholars have established that campus facilities have significantly influenced student recruitment and retention (June, 2006; Kinnaman, 2012). Therefore, I also examined the influence of various campus facilities on student retention by analyzing the importance of these facilities for continued education. Noel-Levitz (2011) cited facilities, such as laboratories, were

cited important for students interested in specific fields of study. Results from the current study revealed that a conducive academic facility that allows students to study and thrive academically significantly influenced student intentions to persist to graduation in the same university. Findings show more than half (51.9%) of respondents agreed campus academic facilities were *very important*, and 36.9% agreed academic facilities were *important*. Most respondents felt academic facilities played an important role in maintaining student engagement, satisfaction, and, eventually, their intention to remain enrolled to graduation.

Residential life facilities also play a crucial role in influencing the retention of students, especially among first- and second-year students. Results indicate 20.3% of respondents felt residential facilities were *very important,* and 33.7 % of respondents agreed residential facilities were *important* in influencing the retention of college students, especially those living on campus. Levey et al. (2020) provided considerable empirical evidence that satisfaction and retention are enhanced with the availability of on-campus housing. The availability of on-campus residential facilities was identified as important by respondents in increasing the likelihood of remaining enrolled (see Tables 2, 4, and 9).

Findings also suggest students at SCSU might be influenced to persist to graduation by the availability of campus athletic facilities, which corresponds with Schneder and Messenger's (2012) research. About one fifth of respondents (21.9%) in the current study felt athletic facilities were *very important,* and 22.5 % agreed they were *important*. Most respondents felt the availability of campus athletic facilities was very important in maintaining student engagement, providing satisfaction, and promoting the need and desire for students to remain at the institution until graduation.

Recreational facilities have also been cited by various scholars as very essential in continued student retention. According to Rands and Gansemer-Topf (2017), recreational and sports facilities play a role in student satisfaction, engagement, success, and retention. My findings were congruent with these conclusions. Survey responses indicate 23.5% of participants felt campus recreational facilities were *very important*, and 34.2% of respondents agreed recreational facilities were *important* in influencing student retention.

The importance of student unions in continued education may greatly influence the retention of college students, especially at SCSU. Results indicate 21.4% of respondents felt student unions in continued education were *very important*, and 27.8% felt student unions were *important* in influencing student retention. Therefore, I conclude student unions play a significant role in influencing the retention of students.

Facilities such as libraries significantly motivate students to enroll and persist to graduation in the same institution. Findings indicate 59.4% of respondents felt library facilities at SCSU were *very important*, and 29.9% of respondents agreed library facilities were *important* in influencing student retention. According to Weber-Bezich (2014), classroom design, which includes library facilities, promotes interaction and satisfaction. This finding may be attributed to the fact that well-designed library facilities that offer a great environment for students to study and thrive academically will greatly motivate students' decisions to persist to graduation.

A student's choice to remain in an institution may be highly influenced by other factors (e.g., the availability of technology infrastructure, space for cultural traditions, quality and conditions of facilities, location of the campus, indoor air quality, and safety and security). Findings show most respondents (92%) felt technological infrastructure played an important role

in influencing student satisfaction and retention. Additionally, 90.4% of respondents agreed the quality and condition of the facilities were important in influencing the retention of students in universities.

The location of the campus, indoor air quality, and safety and security also play an important role in student decisions to persist to graduation. Findings indicate 73.3% of respondents agreed the location of the campus was an important consideration in student retention. Indoor air quality has been cited previously by scholars such as Brink et al. (2020) and Satish et al. (2012) as having a significant impact on the level of satisfaction and, ultimately, retention of students. Findings show most respondents (86.6%) felt indoor air quality played an important role in influencing students to persist to graduation. The safety and security of campus students are paramount and could greatly influence the level of retention of students. Results indicate 91.4% of respondents agreed safety and security significantly influenced student decisions to remain until graduation.

Limitations of the Study

The limitations of this research included surveying undergraduate and graduate students at a single higher education institution, SCSU, which limited the research responses to participants from one institution. This limitation could be addressed in future research by sampling students from multiple institutions. Surveys were sent to four primary groups identified by (a) gender, (b) race and ethnicity, (c) students living on and off campus, and (d) undergraduate or graduate students. Working with the office of analytics and institutional research, percentages of each group were identified and designed to represent the diversity of the full student population. Although most survey responses closely matched the design intent, there

was one notable exception. The gender group was designed to include 45.84% males, but, ultimately, only 39% of the study sample was male because of differences in response rates by gender. The study was also limited to students' willingness to voluntarily engage with the survey instrument and answer all the questions; incomplete surveys were not used. This could be resolved in the future by encouraging more students to participate in a survey, which should be broadened to include issues other than facilities that likely influence satisfaction and retention. The first consideration should be to conduct the survey during the academic year rather than during any extended period of break in class schedules, which was the case in this study.

Implications

Research findings are vital to academic institutions in policy implementation and practice to increase satisfaction levels among students and influence students' decisions to persist to graduation. For example, recognizing and ranking the campus facilities students require could help university leaders allocate available funding efficiently to enhance satisfaction and retention. Findings in this study indicate students are more satisfied with academic, recreational, residential life, and library facilities that are easily accessible even for students with disabilities. Understanding these student needs, institutional leaders can implement decisions such as well-designed and remodeled institution facilities that comply with ADA regulations to ensure students are more satisfied and motivated to persist to graduation.

Attractive campus facilities significantly influence choice of student enrollment in institutions and continued education. Institutional leaders could renovate their facilities to attract more students and encourage retention. Additionally, institutions may further this research by establishing the current needs of their students, which would promote increased satisfaction and

retention. Student surveys can be crucial in assisting institutional leaders in wisely allocating limited resources to improve student satisfaction levels and, consequently, retention.

Results suggest campus facilities are a significant factor in student college-going, ongoing satisfaction, and retention. This supports the conceptual framework of this study and the theory that, despite varying student perceptions and satisfaction levels, campus facilities remain statistically significant in influencing student satisfaction and retention. The review of academic literature and the results of the survey indicate campus facilities are important for student satisfaction, and this satisfaction contributes to positive student retention. As noted previously, Reynolds (2007) found the overall condition of campus was rated positively by 66.9% of their study's student participants, and June (2006) found a 62% positive response rate in their research. In comparison, more than 90% of SCSU students indicated the quality and condition of facilities were *important* or *very important*. Positive satisfaction ratings for academic facilities (64.7%) and library facilities (83.4%) were comparable to findings by June (2006) and Reynolds (2007), but positive satisfaction ratings for residential life (36.9%), athletic facilities (38.5%), recreational facilities (41.2%), and student union (37.5%) were well below those reported by June (2006) and Reynolds (2007).

Overall, findings support the theory that facilities are an important element in overall student satisfaction, which can enhance persistence and retention. One open-ended question from this study (i.e., "If you could make one specific recommendation to the leaders of St. Cloud State University for improving the quality of campus facilities, what would that be") received the most extensive responses. The feedback could be organized into four categories: (a) desire for

availability of technology and updated software relevant to program of study, (b) continued

renovation of facilities, (c) safety in and around campus, and (d) parking and transportation.

The results of this research may be helpful to leaders of educational institutions who can

adopt the research findings and improve their campus facilities to attract new students, promote

satisfaction, and encourage more students to persist to graduation. As a former practitioner of

facilities management, I have a realistic understanding of the budgetary constraints that are an

everyday reality for many higher education institutions, including SCSU.

As I demonstrated in previous chapters, and as shown through the research I conducted in

this study, facilities management has been financially stretched alongside other departments in

the university. With that understanding, considering alternatives to maintaining campus facilities,

grounds, and hardscape should be the basis for building budget allocations going forward. Public

and private partnerships have been successful and will likely continue to be used in the future.

Based on survey findings, including direct feedback through open-ended questions,

students clearly see value in modern and state-of-the-art facilities where they can gather, study,

and socialize. With funding in short supply throughout the system of higher education, SCSU

administrators will be required to make hard choices between deferring maintenance or

considering demolition of facilities beyond the threshold of repair.

Recommendations for Future Research

Subsequent research may provide additional insight to the needs of various demographic

groups at SCSU. I can offer three possible research topics based on the results of this study:

- Because such a high percentage of respondents were unsure about the

  accommodations provided for compliance with ADA, it could be important to further

explore these important ADA questions to enhance student satisfaction and retention levels at SCSU.

- Students rated their satisfaction with academic and library facilities very highly, but satisfaction with other facilities was relatively low. Further exploration is warranted to delve more deeply into the reasons for these differences in satisfaction levels.

- Although there has been a decline in enrollment at SCSU, there have been encouraging signs of the university's commitment to reaching out to and enrolling a diverse student population. Potential follow-up research could include analysis of the demographics identified and additional survey instruments being developed to examine the cause of the fluctuation as it pertains to ideal facilities and infrastructure that have the largest effect on student demographic group satisfaction and retention levels.

Conclusion

My main objective in this study was to examine the influence of campus facilities on student satisfaction and retention at a public university in the Midwest. I administered questionnaires to participants to explore (a) the influence of campus facilities on students' current level of satisfaction and intention to continue enrollment; (b) the specific types of facilities most affecting student choice and satisfaction; and (c) how student perceptions, expectations, and satisfaction are related to various student demographic characteristics, including the category of graduate and undergraduate demographics.

As established by this research, the availability of essential facilities such as academic, residential life, athletics, recreation, student unions, and libraries, and an attractive campus, all

have a part to play in student satisfaction, engagement, and, ultimately, academic success and retention. The findings of the research indicate all the various aspects of campus facilities have a significant influence on students' level of satisfaction. This conclusion is consistent with results from Reynolds and Valcik's (2007) survey, which showed campus facilities had an important impact on student satisfaction, ultimately leading to academic success and retention. In addition, research findings indicate students at SCSU are provided with a supportive environment and facilities that create a feeling of satisfaction among students and promote retention to graduation.

The findings of this analysis have identified the specific aspects and types of facilities that most influence student satisfaction and intention to persist to graduation. As discussed previously, academic, recreational, athletic, residential life, student union, and library facilities significantly influence student satisfaction and retention levels. Findings also reveal factors such as technological infrastructure, space for cultural tradition, quality and condition of facilities, campus location, indoor air quality, and safety and security on campus greatly influence the number of students who persist to graduation.

Moreover, the research establishes student satisfaction and retention might vary based on demographic factors such as student classification, housing status, nationality, cumulative GPA, gender, age group, and race or ethnicity. Educational institutions are encouraged to establish facilities that meet the expectations of their students and promote satisfaction and student retention.

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Appendix A: 2013 Survey Results

ST. CLOUD STATE UNIVERSITY

Annual Spring Survey of SCSU Students
Spring 2013

Results for Facilities Management
Tim Norton, Director

PREPARED BY
ST. CLOUD STATE UNIVERSITY SURVEY
April 2013

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I.. INTRODUCTION TO THE REPORT AND METHODS

The SCSU Survey is an ongoing survey research extension of St. Cloud State University. The SCSU Survey performs its research primarily in the form of telephone interviews.

Dr. Stephen Frank began the survey in 1980 conducting several omnibus surveys a year of central Minnesota adults in conjunction with his Political Science classes. Presently, the omnibus surveys continue, but have shifted to a primary statewide focus. These statewide surveys are conducted once a year in the fall and focus on statewide issues such as election races, current events, and other important issues that are present in the state of Minnesota. During spring semester, the Survey conducts an omnibus survey of currently enrolled adults.

The Survey is financed by conducting surveys for government agencies (state and local) and for nonprofits. We do not do surveys for political parties or candidates. Some support is provided by the SCSU School of Public Affairs and SCSU.

The primary mission of the SCSU Survey is to serve the academic community and public and nonprofit sector community through its commitment to high quality survey research and to provide education and experiential opportunities to researchers and students. We strive to assure that all SCSU students and faculty directors contribute to the research process, as all are essential in making a research project successful. This success is measured by our ability to obtain high quality survey data that is timely, accurate, and reliable, while maintaining an environment that promotes the professional and personal growth of each staff member. The survey procedures used by the SCSU Survey adhere to the highest quality academic standards. The SCSU Survey maintains the highest ethical standards in its procedures and methods. Both faculty and student directors demonstrate integrity and respect for dignity in all interactions with colleagues, clients, researchers, and survey participants.

II.. SURVEY PERSONNEL

The Survey's faculty directors are Dr. Steve Frank (SCSU Professor of Political Science), Dr. Steven Wagner (SCSU Professor of Political Science), Dr. David Robinson (SCSU Professor of Statistics). Dr. Michelle Kukoleca Hammes (SCSU Associate Professor of Political Science and Dr. Sandrine Zerbib (SCSU Associate Professor of Sociology) and Dr. John Kulas (SCSU Associate Professor of Industrial and Organizational Psychology). The faculty directors are members of the Midwest Association of Public Opinion Research (M.A.P.O.R.) and the American Association of Public Opinion Research (A.A.P.O.R.). The directors subscribe to the code of ethics of A.A.P.O.R.

A. Stephen I. Frank

Dr. Frank holds a Doctor of Philosophy in Political Science from Washington State University. Dr. Frank teaches courses in American Politics, Public Opinion and Research Methods at St. Cloud State University. Dr. Frank started the SCSU Survey in 1980, and since has played a major role in the development, administration and analysis of over 150 telephone surveys for local and state governments, school districts and a variety of nonprofit agencies. Dr. Frank has completed extensive postgraduate work

in survey research at the University of Michigan. Dr. Frank coauthored with Dr. Wagner and published by Harcourt College, "We Shocked the World!" A Case Study of Jesse Ventura's Election as Governor of Minnesota. Revised Edition. He also published two academic book chapters: one appears in the current edition of Perspectives on Minnesota Government and Politics and the other, co-authored with Dr. Wagner, is contained in Campaigns and Elections, edited by Robert Watson and Colton Campbell. Dr. Frank is past chairperson of the SCSU Department of Political Science and served as President of the Minnesota Political Science Association. At its 2010 Annual meeting, the Minnesota Political Science Association named Dr. Frank as its first Distinguished Professor of Political Science.

B. Steven C. Wagner

Dr. Wagner holds a Doctor of Philosophy in Political Science and a Master of Public Administration from Northern Illinois University. Dr. Wagner earned his Bachelor of Science in Political Science from Illinois State University. Dr. Wagner teaches courses in American Politics and Public and Nonprofit Management at St. Cloud State University. Dr. Wagner joined the SCSU Survey in 1997. Before coming to SCSU, Dr. Wagner taught in Kansas where he engaged in community-based survey research and before that was staff researcher for the U.S. General Accounting Office. Dr. Wagner has written many papers on taxation, and state politics and has published articles on voting behavior, federal funding of local services and organizational decision making. Dr. Wagner, with Dr. Frank, recently published two texts on Jesse Ventura's election as Minnesota's Governor and a book chapter on the campaign. Dr. Wagner is immediate past chairperson of the SCSU Department of Political Science.

C. Michelle Kukoleca Hammes

Dr. Kukoleca Hammes holds a Doctor of Philosophy in Political Science and a Masters in Political Science from the State University of New York at Binghamton. Dr. Kukoleca Hammes earned her Bachelor of Arts in Political Science from Niagara University. Kr. Kukoleca Hammes' is a comparativist with an area focus on North America and Western Europe. Her substantive focus is representative governmental institutions. She teaches courses in American Government, Introduction to Ideas and Institutions, Western European Politics, and a Capstone in Political Science at St. Cloud State University. Dr. Kukoleca Hammes, since joining the survey team, is using her extensive graduate school training in political methodology to aid in questionnaire construction and results analysis. She recently published a book chapter on Minnesota public participation in the Fifth Edition of Perspectives on Minnesota Government and Politics.

D. David H. Robinson

Dr. Robinson holds a Doctor of Philosophy in Statistics and a Masters in Statistics from the University of Iowa. Dr. Robinson earned his Bachelor of Science in Mathematics from Henderson State University. At St. Cloud State University, Dr. Robinson teaches courses in survey planning and contingency tables, statistical methods for the social sciences, probability and computer simulation, and other statistical applications. Since coming to SCSU in 1985 and before that time, Dr. Robinson has served as statistical consultant for numerous statistical analyses of survey results. He has coauthored a book on computer simulation and analysis, and has published articles in the areas of nonparametric statistics, multivariate statistics, analysis of baseball statistics, and statistical analysis of computer network performance. Dr. Robinson recently served as chairperson for the SCSU Department of Statistics and Computer Networking.

E. Sandrine Zerbib

Dr. Zerbib holds a Doctor of Philosophy in Sociology from the University of California Irvine and a Masters in Sociology from both California State University-Fullerton and University of Paris 10-Nanterre (France). Dr. Zerbib's ongoing research focuses on issues of immigration, sexuality and citizenship. Dr. Zerbib's current research analyzes the effect of domestic partnership laws on gay bi-national couples leaving in France. She is also currently collaborating with Dr. Finan on research with immigrant women farmers or gardeners with a particular focus on gender relations and food systems.
She teaches courses in Research Methods, Sociology of Gender, Immigration and Citizenship, and Advanced Research Methods. Her past research on belly dance and body images can be found in sources such as the Journal of Gender Studies and Research in Social Movements, Conflicts and Change series.

F. John Kulas

John Kulas is Associate Professor of Industrial and Organizational Psychology at Saint Cloud State University. His applied background includes current and past appointments as a test publisher, an internal HR practitioner, and an external organizational consultant (focusing primarily on topics of personnel selection and performance assessment). He has authored over 20 conference and journal articles, dealing with issues of measurement in organizational settings. His works can be found in sources such as the Journal of Psychology, Organizational Research Methods, Journal of Applied Measurement, Journal of Business and Psychology, Social Justice Research, and Journal of Research in Personality. He has received research awards from the Society for Industrial and Organizational Psychology and the American Psychological Society.

III. CALL CENTER SUPERVISORS AND INTERVIEWERS

Lead Student Director

Ms. Karen Elizabeth Stay 10th Year Student, B.A. Anthropology, B.A. Sociology and B.S. Community Health, Special Studies in Program Evaluation Cold Spring, MN.

Assistant Student Supervising Directors

Ms. Kim Kelly 3rd Year Student, Political Science Major, Minnetonka, Minnesota
Ms. Bre Moulder 3rd Year Student, Political Science and Women's Studies Major, Duluth, Minnesota

Survey Lab Student Directors

Mr. Bikal Kafle 4th Year Student, Sociology Major, Statistics Minor, Kathmandu, Nepal
Mr. Thierry Amisi 4th Year Student, Political Science and International Relations Majors, Environmental Technology Studies Minor, Rochester, Minnesota
Mr. Patrick Ilboudo 4th Year Student, Applied Statistics Major, Information Systems Minor, Burkina Faso
Ms. Jake Smith 2nd Year Student, Political Science and German Majors, Albuquerque, New Mexico
Mr. Ben Svendsen 2nd Year Student, History and Political Science Majors, Winona, Minnesota

Student Technical Consultant

Zachary J. Przybilla 5th Year Student, Economics Major, Information Systems Minor, Sartell, MN.

Immediate Past Student Survey Directors

Sonny Sherman---4th Year---Sociology Major, Creative Writing Minor----Ely, MN
Leah Dhein Senior Sociology Minor in Psychology St. Cloud, MN
Liz Dirks Junior Sociology Rodger, MN
Katie Lahr (Tish) Political Science Major St. Cloud, MN
D. Zach Keller, Statistics Callender, Iowa

Student Callers
The interviewers for this survey are enrolled in the classes of Drs. Frank and Robinson and their participation was part of their coursework. Student directors and faculty conducted a general training session. Student directors monitored all calling over the survey period.

IV. Methodology

A. Introduction

The March 2013 St. Cloud State University Survey findings are based on telephone interviews with a representative sample of 509 currently enrolled SCSU students. The sample included both landline phones and cell phones. Interviews were conducted from March 25 to April 2 (no calling March 29,30) from about 4:30 to 9:30 each night at the St. Cloud State University Survey Lab. The sample was obtained from the Center for Information Systems.

B. Sample Design

The sample was designed to represent all currently enrolled SCSU students with a phone number (landline or cell phone). The phone numbers were drawn systematically from a stratified database of all SCSU students: (a) 500 dorm residents were chosen from a population of about 1900 SCSU dorm residents with available phone numbers; (b) 1,600 off-campus residents were chosen from a population of 11,454 SCSU off-campus residents with available phone numbers.

C. Contact Procedures

Before calling began, the original sample was comprised of 2100 students, including 500 dorm residents and 1,600 off-campus residents. From this sample, 7 students were screened out for being born after 1995, and thus less than 18 years old and as such fell outside our Institutional Research Board approval. Of the remaining 2,093 students, 509 (after statistical weighting) respondents completed the survey.
Several steps were taken to ensure that the telephone sample of students was representative of the larger SCSU student population. Phone numbers with no initial contact were called up to 10 times over different days and times to increase the possibility of contact. In addition, appointments were made as necessary to interview the designated respondent at his/her convenience. Calling was completed between 4:30 pm to 9:30 pm to maximize contacts and ensure equal opportunities to respond among various respondent demographic groups. Attempts to convert initial refusals commenced almost immediately and continued throughout the survey. The final few nights of interviewing were almost exclusively devoted to contacting hard to reach respondents. The sample is an almost exact match to the population of currently enrolled SCSU students with respect to demographics such as age, sex, ethnicity, class standing, dorm or not, and international student or not. The demographics of gender is about 1.5% different than the population and

dorm residents are about 3% higher than the actuality. Statistical weighting was done on those two variables to make them an exact match.

D. Technology

The SCSU Survey operates a Computer Assisted Telephone Interviewing (CATI) Lab on the St. Cloud State University campus. The CATI Lab is equipped with 19 interviewer stations; each includes a computer, a phone, and a headset. In addition to the interviewer stations, there is the Supervisor Station, which is used to monitor the survey while it is in progress. The SCSU Survey has its own server designated solely for the use of the SCSU Survey.

The SCSU Survey is licensed to use Sawtooth Software's Sensus 5.0, a state-of-the-art windows-based computer-assisted interviewing package. This program allows us to develop virtually any type of questionnaire while at the same time programming edit and consistency checks and other quality control measures to ensure the most valid data. The instrument was pretested prior to interviewing to make certain that all equipment and programming was in working order and to verify that the questionnaire was clear.

All interview stations are networked for complete, ongoing sample management. Sawtooth Software's Sensus allows immediate data updating, ensuring maximum data integrity and allowing clients to get progress reports anytime. The Survey directors are able the review data for quality and consistency.

Question answers are entered directly into the computer; thus, keypunching is eliminated, which decreases human error and facilitates immediate data analysis. The calling system is programmed to store call record keeping automatically, allowing interviewers and supervisors to focus on the interviewing task. Callbacks are programmed through the computer network and made on a schedule.

E. Sample Error

The margin of sampling error for the complete set of weighted data is ±4.4% at the 95% confidence level. In all sample surveys there are other possible sources of error for which precise estimates cannot be calculated. These include interviewer and coder error, respondent misinterpretation, and analysis errors. When analysis is made of subsamples such as respondent gender, the sample error may be larger.

F. Sample Weighting

Weighting is generally used in survey analysis to compensate for patterns of nonresponse that might bias results. The interviewed sample of all students was weighted to match parameters for gender and dorm residents (see above). All statistics reported are weighted.

The total survey data set consisted of 30 asked variables and six imported variables from the student data base (gender, international student or not, year born, ethnicity, class standing, dorm or not). There was one open end question and two multiple response questions. Of the 30 questions, there were two asked for the Computer Technology Fee Committee, two for the SCSU Campus Involvement, five for SCSU Public Safety and four for SCSU Facilities. Findings, methodology and the questionnaire are found by going to the SCSU Survey web site and following the links to the spring SCSU student 2013 survey.

Sample Disposition

2,098   Total Numbers Dialed

509 (after weighting)   Completed Interviews

8   Partial

Noncontacts

272   Refusals and Never Calls (hard, soft, never call-some never calls were parents or others)

47   Callbacks and Gatekeepers

1   Hearing or Language Barrier

682   Answering Machine

11   Ill, Hospital, Out of Town

1,013   Total Non-Contacts

Unknown Eligibility

183	No Answer
14	Busy or Call Blocking
35	Immediate Hang Up
232	Total Unknown Eligibility

Not Eligible

11	Business or Government
3	Computer or Fax
206	Nonworking or Wrong Number
19	No Longer in School
239	Total Not Eligible

AAPOR Response Rate #3 29%

Number of completes, divided by the total of (completes + noncontacts + (e * unknown-eligible) where e = assumed percentage of unknowns that actually are eligible.
Used for e = .90 (or 90% eligible)
formula will be 509/ (509+1013+(.9*232)) = .294 = 29%be 509/ (509+1013+(.9*232)) = .294 = 29%

NOTE Thanks to Dr. Robinson (the 29% using this stringent formula is average to high.
Using more relaxed cooperation rate where the respondent was contacted and participated or refused was about 70%

Substantive Question for Facilities Management:

Thinking about things such as carpets, paint, entry windows, bathrooms, grounds, and snow removal, overall, how satisfied are you with the quality of the facilities on campus? Are you Very Satisfied, Satisfied, Dissatisfied or Very Dissatisfied?

> 1 = Very Satisfied
> 2 = Satisfied
> 3 = Dissatisfied
> 4 = Very Dissatisfied
> 8 = Don't Know
> 9 = Refused

During your search for a college, did you rule out any college or university because the maintenance of buildings, lawns, restrooms, trash containers were poor?

> 1 = Yes
> 2 = No
> 8 = Don't Know
> 9 = Refused

Please tell me if you Strongly Agree, Agree, Disagree or Strongly Disagree with the following statements. The condition of the facilities on campus was important in my choice of attending St. Cloud State University

> 1 = Strongly Agree

2 = Somewhat Agree
3 = Somewhat Disagree
4 = Strongly Disagree
8 = Don't Know
9 = Refused

During my college or university search, my parents were more concerned about the quality of facilities on campus than I was?

1 = Strongly Agree
2 = Somewhat Agree
3 = Somewhat Disagree
4 = Strongly Disagree
8 = Don't Know
9 = Refused

Quality of SCSU Facilities

	Frequency	Percent
Very Satisfied	91	18%
Satisfied	343	68%
Dissatisfied	55	11%
Very Dissatisfied	4	1%
Don't Know	11	2%
Total	504	100%

Ruling Out a College Based on Facilities

	Frequency	Percent
Yes	63	13%
No	429	85%
Don't Know	12	2%
Total	504	100%

Facilities Influenced Choice to Attend SCSU

	Frequency	Percent
Strongly Agree	38	8%
Agree	257	51%
Disagree	163	32%
Strongly Disagree	34	7%
Don't Know	12	2%
Total	504	100%

Parents Were More Concerned Than Student About Facilities

	Frequency	Percent
Strongly Agree	34	7%
Agree	157	32%
Disagree	219	44%
Strongly Disagree	49	10%
Don't Know	39	8%
Total	498	100%

Demographic Breakdown of Respondents

Gender

	Frequency	Percent
Male	268	53%
Female	239	47%
Total	507	100%

On-Campus or Off-Campus Resident

	Frequency	Percent
Off Campus	403	80%
On Campus	104	20%
Total	507	100%

Ethnicity

	Frequency	Percent
Black	28	6%
Asian	35	7%
Caucasian	416	85%
Hispanic	4	1%
Native American	5	1%
Total	488	100%

Class Standing

	Frequency	Percent
First Year	77	15%
Sophomore	118	23%
Junior	100	20%
Senior	131	26%
Previous Degree	8	2%
Special	23	5%
Graduate	50	10%
Total	507	100%

International Student or Not International Student

	Frequency	Percent
Not International	470	93%
International	37	7%
Total	507	100%

Age Group

	Frequency	Percent
18–20 years	139	27%
21–25 years	247	49%
26–30 years	52	10%
31 years and older	69	14%
Total	507	100%

Quality of SCSU Facilities

GENDER	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	Don't Know
Male	52	181	28	2	4
	19.50%	67.80%	10.50%	0.70%	1.50%
Female	39	162	27	2	7
	16.50%	68.40%	11.40%	0.80%	3.00%
DORM					
Off Campus	74	267	46	3	10
	18.50%	66.80%	11.50%	0.80%	2.50%
	17	76	9	1	1

On Campus

16.30%	73.10%	8.70%	1.00%	1.00%

ETHNICITY

Black

9	16	2	0	1
32.10%	57.10%	7.10%	0.00%	3.60%

Asian

1	28	5	1	0
2.90%	80.00%	14.30%	2.90%	0.00%

Caucasian

77	281	43	3	10
18.60%	67.90%	10.40%	0.70%	2.40%

Hispanic

0	4	0	0	0
0.00%	100.00%	0.00%	0.00%	0.00%

Native American

0	4	1	0	0
0.00%	80.00%	20.00%	0.00%	0.00%

CLASS

1st Year

14	56	6	1	0
18.20%	72.70%	7.80%	1.30%	0.00%

Sophomore

24	74	15	2	3
20.30%	62.70%	12.70%	1.70%	2.50%

Junior

17	73	9	0	0
17.20%	73.70%	9.10%	0.00%	0.00%

Senior

23	87	17	1	3
17.60%	66.40%	13.00%	0.80%	2.30%

Previous Degree

0	4	4	0	0
0.00%	50.00%	50.00%	0.00%	0.00%

Special

4	16	1	0	1
18.20%	72.70%	4.50%	0.00%	4.50%

Graduate

9	33	3	0	4
18.40%	67.30%	6.10%	0.00%	8.20%

INTERNATIONAL

Not International

86	315	53	3	11
18.40%	67.30%	11.30%	0.60%	2.40%

International	5	28	2	1	0
	13.90%	77.80%	5.60%	2.80%	0.00%

AGE GROUPS

18-20 years	26	92	19	0	1
	18.80%	66.70%	13.80%	0.00%	0.70%
21-25 years	42	169	26	4	4
	17.10%	69.00%	10.60%	1.60%	1.60%
26-30 years	9	34	7	0	2
	17.30%	65.40%	13.50%	0.00%	3.80%
31 years or older	14	48	3	0	4
	20.30%	69.60%	4.30%	0.00%	5.80%

Ruling Out a College Based on Facilities	Yes	No	Don't Know
GENDER			
Male	35	225	7
	13.10%	84.30%	2.60%
Female	28	204	5
	11.80%	86.10%	2.10%
DORM			
Off Campus	50	339	11
	12.50%	84.80%	2.80%
On Campus	13	90	1
	12.50%	86.50%	1.00%
ETHNICITY			
Black	2	25	1
	7.10%	89.30%	3.60%
Asian	7	27	1
	20.00%	77.10%	2.90%
Caucasian	49	357	8
	11.80%	86.20%	1.90%

Hispanic	0	4	0
	0.00%	100.00%	0.00%
Native American	2	3	0
	40.00%	60.00%	0.00%

CLASS

1st Year	7	70	0
	9.10%	90.90%	0.00%
Sophomore	17	99	2
	14.40%	83.90%	1.70%
Junior	17	82	0
	17.20%	82.80%	0.00%
Senior	15	111	5
	11.50%	84.70%	3.80%
Previous Degree	0	8	0
	0.00%	100.00%	0.00%
Special	1	18	3
	4.50%	81.80%	13.60%
Graduate	6	41	2
	12.20%	83.70%	4.10%

INTERNATIONAL

Not International	57	401	10
	12.20%	85.70%	2.10%
International	6	28	2
	16.70%	77.80%	5.60%

AGE GROUPS

18-20 years	18	118	2
	13.00%	85.50%	1.40%
21-25 years	32	209	4
	13.10%	85.30%	1.60%
	6	44	2

26-30 years

	11.50%	84.60%	3.80%
31 years or older	7	58	4
	10.10%	84.10%	5.80%

Did Facilities Influence Your Choice to Attend SCSU?

	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know
GENDER					
Male	21	139	86	15	5
	7.90%	52.30%	32.30%	5.60%	1.90%
Female	17	118	77	19	7
	7.10%	49.60%	32.40%	8.00%	2.90%
DORM					
Off Campus	29	202	135	26	9
	7.20%	50.40%	33.70%	6.50%	2.20%
On Campus	9	55	28	8	3
	8.70%	53.40%	27.20%	7.80%	2.90%
ETHNICITY					
Black	5	14	8	1	0
	17.90%	50.00%	28.60%	3.60%	0.00%
Asian	4	15	13	2	1
	11.40%	42.90%	37.10%	5.70%	2.90%
Caucasian	26	214	135	29	10
	6.30%	51.70%	32.60%	7.00%	2.40%
Hispanic	0	1	2	0	1
	0.00%	25.00%	50.00%	0.00%	25.00%
Native American	0	3	2	0	0
	0.00%	60.00%	40.00%	0.00%	0.00%
CLASS					
1st Year	5	38	25	7	1

	6.60%	50.00%	32.90%	9.20%	1.30%
Sophomore	8	68	35	5	2
	6.80%	57.60%	29.70%	4.20%	1.70%
Junior	7	54	29	5	4
	7.10%	54.50%	29.30%	5.10%	4.00%
Senior	12	60	49	8	2
	9.20%	45.80%	37.40%	6.10%	1.50%
Previous Degree	0	0	5	2	1
	0.00%	0.00%	62.50%	25.00%	12.50%
Special	2	13	7	0	1
	8.70%	56.50%	30.40%	0.00%	4.30%
Graduate	4	24	13	7	1
	8.20%	49.00%	26.50%	14.30%	2.00%
INTERNATIONAL					
Not International	31	235	157	34	11
	6.60%	50.20%	33.50%	7.30%	2.40%
International	7	22	6	0	1
	19.40%	61.10%	16.70%	0.00%	2.80%
Age Groups					
18-20 years	8	80	42	6	2
	5.80%	58.00%	30.40%	4.30%	1.40%
21-25 years	20	131	76	12	6
	8.20%	53.50%	31.00%	4.90%	2.40%
26-30 years	5	20	22	2	3
	9.60%	38.50%	42.30%	3.80%	5.80%
31 years or older	5	26	23	14	1
	7.20%	37.70%	33.30%	20.30%	1.40%

Parents More Concerned About
Facilities Than Student

	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know
GENDER					
Male	17	87	111	28	22
	6.40%	32.80%	41.90%	10.60%	8.30%
Female	17	70	108	21	17
	7.30%	30.00%	46.40%	9.00%	7.30%
DORM					
Off Campus	25	113	178	42	36
	6.30%	28.70%	45.20%	10.70%	9.10%
On Campus	9	44	41	7	3
	8.70%	42.30%	39.40%	6.70%	2.90%
ETHNICITY					
Black	1	13	10	1	2
	3.70%	48.10%	37.00%	3.70%	7.40%
Asian	5	14	12	2	2
	14.30%	40.00%	34.30%	5.70%	5.70%
Caucasian	25	121	188	42	33
	6.10%	29.60%	46.00%	10.30%	8.10%
Hispanic	0	1	3	0	0
	0.00%	25.00%	75.00%	0.00%	0.00%
Native American	0	2	2	0	1
	0.00%	40.00%	40.00%	0.00%	20%
CLASS					
1st Year	5	29	33	8	8
	6.50%	37.70%	42.90%	10.40%	8.10%
Sophomore	7	43	54	7	15
	6.00%	36.80%	46.20%	6.00%	11.90%
Junior	9	29	45	8	2

	9.10%	29.30%	45.50%	8.10%	25.00%
Senior	9	36	50	16	0
	7.10%	28.60%	39.70%	12.70%	0.00%
Previous Degree	0	1	4	1	6
	0.00%	12.50%	50.00%	12.50%	12.50%
Special	2	10	10	1	38
	8.70%	43.50%	43.50%	4.30%	8.20%
Graduate	2	9	23	8	1
	4.20%	18.80%	47.90%	16.70%	2.80%

INTERNATIONAL

Not International	28	141	209	46	38
	6.10%	30.50%	45.20%	10.00%	8.40%
International	6	16	10	3	1
	16.70%	44.40%	27.80%	8.30%	2.80%

Age Groups

18-20 years	9	57	57	13	3
	6.50%	41.00%	41.00%	9.40%	2.20%
21-25 years	23	88	111	10	12
	9.40%	36.10%	45.50%	4.10%	4.90%
26-30 years	0	6	22	12	11
	0.00%	11.80%	43.10%	23.50%	21.60%
31 years or older	2	6	29	14	13
	3.10%	9.40%	45.30%	21.90%	20.30%

Appendix B: Questionnaire

Campus Facilities Questionnaire for Students

Implied Consent
My name is Tim Norton; I am a doctoral candidate at St. Cloud State University. In consultation with my academic advisor, Dr. Rachel Friedensen, my dissertation committee, and a number of other talented faculty and staff I have been granted permission to send out the attached survey, data results of which will be incorporated into my dissertation. I am interested in your opinion, and I am inviting you to participate in a brief survey about campus facilities at St. Cloud State University.

Background Information and Purpose
This survey is being carried out as part of a doctoral research project that explores the role of campus facilities in college student satisfaction and persistence.

Procedures
If you decide to participate, you will be asked to complete the attached online survey. Completion of the survey will take 7-10 minutes of your time.

Risks
There are no risks involved in completing the survey and you can stop your participation at any time.

Benefits
There is no financial benefit to your participation.

Confidentiality
The results of the survey will be reported only in aggregate form with no disclosure of any personally identifiable information. If you do choose to respond, please know that your responses will remain completely confidential.

Research Results
The survey results along with academic research will be included in a dissertation titled, *The Influence of Campus Facilities on the Satisfaction and Retention of Students in a Higher Education Setting*. Once completed and published, the results will be available for research through the St. Cloud State Repository at https://repository.stcloudstate.edu/

Contact Information
If you have any additional questions please contact the researcher, at

, or my advisor, Dr. Rachel Friedensen at

Voluntary Participation/Withdrawal

Your participation in this survey is completely voluntary. Please note that each question has an opt-out option, or "I choose not to answer." Even with the survey results "reported only in aggregate form with no disclosure of any personally identifiable information" I wanted each of you to be comfortable in answering the questions presented.

Acceptance to Participate

Your informed consent to participate in this study is implied when you move past this introductory page. Please answer the question below before you click on the double arrows in the lower right-hand corner to move to the next survey question.

Thank you so much for your consideration.

○ Yes, I am 18 years old or more

○ No, I am not 18 years old and I understand that I will not be able to participate in this survey.

Skip To: End of Survey If 1 = No, I am not 18 years old and I understand that I will not be able to participate in this survey.

2 What is your student classification?

○ First Year

○ Second Year

○ Third Year

○ Fourth Year

○ Fifth Year

○ I choose not to answer

3 What is your major area of study?

_____

4 What is your housing status?

   ⃝ I live on campus

   ⃝ I live off campus

   ⃝ I choose not to answer

5 What is your cumulative Grade Point Average?

☐   Below 2.0

☐   2.0-2.5

☐   2.6-3.0

☐   3.1-3.5

☐   3.6-4.0

☐   I choose not to answer

6 How do you describe your gender? Choose one or more.

	Woman	Man	Transgender	Non-binary/non-conforming	I choose not to answer
Identity	☐	☐	☐	☐	☐

7 What is your current age?

○ 18-24 years old

○ 25-34 years old

○ 35-44 years old

○ 45-54 years old

○ 55 years or more

○ I choose not to answer

8 How do you identify in terms of race and ethnicity? Choose one or more.

☐ African American

☐ African

☐ Black

☐ East Asian

☐ Hispanic/Latinx

☐ Indigenous/Native American

☐ Middle Eastern/North African

☐ Multiracial

☐ Pacific Islander

☐ South Asian

☐ White

☐ Other (Please specify)

_____

☐ I choose not to answer

9 Are you an international student?

○ No

○ Yes

○ I choose not to answer

10 For the campus facilities listed below, please rate the importance of each in your continued education at St. Cloud State University.

	Unimportant	Somewhat Unimportant	Neither Important nor Unimportant	Important	Very Important
Academic Facilities	○	○	○	○	○
Residential Life Facilities	○	○	○	○	○
Athletic Facilities	○	○	○	○	○
Recreational Facilities	○	○	○	○	○
Student Union	○	○	○	○	○
Library	○	○	○	○	○

11 As a student at St. Cloud State University, how satisfied are you with each of these facility types?

	Very Unsatisfied	Unsatisfied	Neither Satisfied nor Unsatisfied	Satisfied	Very Satisfied
Academic Facilities	○	○	○	○	○
Residential Life Facilities	○	○	○	○	○
Athletic Facilities	○	○	○	○	○
Recreational Facilities	○	○	○	○	○
Student Union	○	○	○	○	○
Library	○	○	○	○	○

12 How important is each of the following when thinking about your ongoing satisfaction with St. Cloud State University?

	Unimportant	Somewhat Unimportant	Neither Important nor Unimportant	Important	Very Important
Attractive Campus	○	○	○	○	○
Technology Infrastructure	○	○	○	○	○
Space for Cultural Traditions	○	○	○	○	○
Quality & Condition of Facilities	○	○	○	○	○
Location of the Campus	○	○	○	○	○
Indoor Air Quality	○	○	○	○	○
Safety & Security on Campus	○	○	○	○	○

13 As a student enrolled at St. Cloud State University, the coursework for your program of study was likely located primarily in a single facility, which had the ideal classrooms for instructions and/or study areas? Please offer one or more facilities that you found on campus that had spaces

that were ideal, in your mind, for you to thrive, be satisfied, and persist in your higher education studies and goals.

☐   Atwood Memorial Center

☐   Brown Hall

☐   Centennial Hall

☐   Eastman Hall

☐   Education Building

☐   Engineering/Computing Center

☐   Headley Hall

☐   ISELF Science Building

☐   Kiehle Hall-Arts

☐   Library

☐   Performing Arts Center

☐   Rec Center / Stadium

☐   Riverview

☐   Stewart Hall

☐   Welcome Center

☐   Wick Science Building and Annex

☐   Other (Please specify)

_____

14 St. Cloud State University (SCSU) is committed to providing reasonable accommodations for all enrolled and admitted students, including those who have documented disabilities under the Americans with Disabilities Act (ADA). Accommodations may be individualized or flexible as needed based on the nature of the disability, the built, physical, or virtual (online) environment, the resources or equipment available, the barriers, or other factors.

	Yes	No	Maybe/Unsure	I choose not to answer
Based on your perception, do you feel SCSU provides reasonable accommodations that are compliant with ADA regulations?	○	○	○	○
Has SCSU provide you with an environment of accommodations and inclusion in which you feel a sense of satisfaction that your education goals are being met as you work towards completing your degree or certification program?	○	○	○	○

15 If you could make one specific recommendation to the leaders of St. Cloud State University for improving the quality of campus facilities, what would that be?

Appendix C: IRB Approval

Institutional Review Board
720 Fourth Avenue South, AS 101
St. Cloud, MN 56301-4498

June 3, 2022

To: Tim Norton

Email: ████████████████

Faculty Mentor: Rachel Friedensen

Email: ████████████████

The Institutional Review Board has reviwed your Modification request dated for your project titled "*The Influence of Campus Facilities on the Satisfaction and Retention of Students in a Higher Education Setting*".

Your modification has been Approved for study population to include graduate students.

SCSU IRB#: 36411318

Please read through the following important information concerning IRB projects:

ALL PROJECTS:
- The principal investigator assumes the responsibilities for the protection of participants in this project. Any
- adverse events must be reported to the IRB as soon as possible (ex. research related injuries, harmful outcomes,
  significant withdrawal of subject population, etc.).
- The principal investigator must seek approval for any changes to the study (ex. research design, consent process,
  survey/interview instruments, funding source, etc.). The IRB reserves the right to review the research at any time

EXEMPT PROJECTS:
- Exempt review only requires the submission of a Continuing Review/Final Report form in advance of the expiration date indicated in this letter if an extension of time is needed.

EXPEDITED AND FULL BOARD REVIEW PROJECTS:
- The principal investigator must submit a Continuing Review/Final Report form
  in advance of the expiration date indicated on this letter to report conclusion of the research or request an extension.
- Approved consent forms display the official IRB stamp which documents approval and expiration dates. If a renewal is requested and approved, new consent forms will be officially stamped and reflect the new approval and
  expiration dates.

If ██ can be of further assistance, feel free to contact the IRB at ██████████ or email ████████████████ and please reference the SCSU IRB number when corresponding.

Sincerely,
IRB Chair: **IRB Institutional Official:**
Dr. Mili Mathew   Dr. Claudia Tomany
Chair and Graduate Director
Assistant Professor   Associate Provost for Research
Communication Sciences and Disorders   Dean of Graduate Studies