BUILDING THE COMMUNITY BACK INTO COMMUNITY COLLEGE: HOW PHYSICAL INFRASTRUCTURE ATTRIBUTES TO STUDENT OUTCOMES

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Abstract:

A park bench, comfortable seating, or a quiet study nook between classes; these spaces seem ordinary, yet they shape how students experience college. For many California community college students, the campus is more than a place to attend class. It is where they wait between work shifts, eat lunch alone or with friends, search for support services, and decide whether they feel comfortable enough to remain. While conversations surrounding student success often focus on policy, funding, and academic reform, less attention has been given to the everyday environments students move through and what those spaces quietly communicate about belonging, support, and connection.

This study examines how the design and availability of physical campus spaces influence students' sense of belonging, trust, and persistence within the Los Rios Community College District, the second-largest community college district in California. Grounded in Eric Klinenberg's (2018) theory of social infrastructure, this research explores how physical spaces function not only as built environments but also as social environments that shape interaction, familiarity, and engagement. Using a mixed-methods approach, this study combines descriptive survey data from currently enrolled students with first-hand field observations conducted across American River College, Cosumnes River College, Folsom Lake College, and Sacramento City College.

Findings show that students regularly utilize libraries, food spaces, study areas, lounges, and outdoor gathering spaces throughout the day; however, these environments do not consistently foster strong social connections or sustained engagement beyond academic necessity. Observational findings further suggest that accessibility, comfort, environmental

upkeep, opportunities for gathering, and institutional design influence how welcoming and supportive students perceive campus spaces to be.

This study argues that physical campus spaces are an important, yet often overlooked, component of student success efforts. Although space alone does not determine educational outcomes, the findings suggest that thoughtfully designed environments can help create conditions where students feel more comfortable remaining on campus, interacting with others, and developing a stronger sense of connection to their institution.

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This milestone would not feel nearly as meaningful without the incredible support system that stood beside me throughout this journey.

Thank you to my parents for always allowing me to be unapologetically myself and for encouraging me to pursue my passions wholeheartedly. Your love and support gave me the confidence to grow into the person I am today.

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Introduction and Background

Introduction:

With over 116 colleges across California, the California Community College system serves over 2 million students annually and has the mission of providing higher education opportunities to all. Many of these students are first-generation, low-income, and racially diverse; they often commute, work long hours, and spend limited time on campus (CCCCO, 2024). For these students, the campus can play an active role in shaping their college experience, influencing whether they feel comfortable accessing resources, spending time on campus, and developing a sense of connection to the institution. The way spaces are designed and where key services are located can quietly signal whether students are welcome, supported, and encouraged to stay.

Despite their efforts for educational accessibility, California community colleges continue to face a significant decline in degree completion, retention, and successful transfer rates (Lederman, 2021). Recent reporting has highlighted that only about one-third of California community college students complete a program within six years, with many dropping out along the way (Lederman, 2021; Rothstein, 2024). To bridge these barriers, the California Community Colleges Chancellor's Office has focused on reimagining student support, expanding basic-needs funding, and increasing outreach to students who have dropped out or been disproportionately impacted (CCCO, 2022). Conversations about student success still tend to center on funding formulas, policies, and instructional reforms rather than the everyday spaces where students spend their time. To explore a different approach, this study will draw upon social infrastructure theory and evaluate how institutions can better serve their students through community building and buildings (literally).

This study asks: In what ways do the design and availability of physical campus spaces influence students' sense of belonging, retention, and persistence? To explore this question, I focused on the second-largest community college district in California, the Los Rios Community College District, which consists of four colleges serving the greater Sacramento region: American River College, Cosumnes River College, Folsom Lake College, and Sacramento City College. In conducting this analysis, I rely on a few key terms that are worth defining at the outset.

- **Physical spaces** refer to both formal learning environments (such as classrooms, labs, and tutoring centers) and informal or social spaces (such as student unions, food and gathering areas, green spaces, lounges, and study nooks);
- **Trust** describes students' confidence that the institution cares about and supports them.
- **Connection** refers to students' sense of belonging and social integration on campus; and
- **Persistence** means their continued enrollment and progress toward a degree or transfer goal (Strayhorn, 2012; Tinto, 1975).

The framework of this study stems from Eric Klinenberg's *Palaces for the People (2018).* Klinenberg (2018) argues that well-designed physical spaces function as "social infrastructure," helping people build connections, trust, and a sense of shared community. He defines social infrastructure generally, noting that it includes "public institutions such as libraries, schools, playgrounds, parks, athletic fields, and swimming pools," as well as "sidewalks, courtyards, community gardens, and other green spaces that invite people into the public realm," along with community organizations and commercial establishments where people can "congregate and

linger" (Klinenberg, 2018, p. 16). This definition reinforces the idea that physical spaces are not neutral; rather, they actively shape opportunities for interaction, belonging, and trust-building among individuals. Using this concept of social infrastructure and connecting it to the landscape of higher education, it is possible to see the impacts that physical spaces (or the lack thereof) have on student outcomes.

Background:

The Los Rios Community College District (LRCCD) serves over 90,000 students annually across 2,400 miles in the Sacramento region (Los Rios Community College District, n.d.). Upheld by the California Community College mission, LRCCD serves a large, diverse student body.

Figure 1. LRCCD Student Demographics Snapshot (Los Rios Community College District, n.d.).

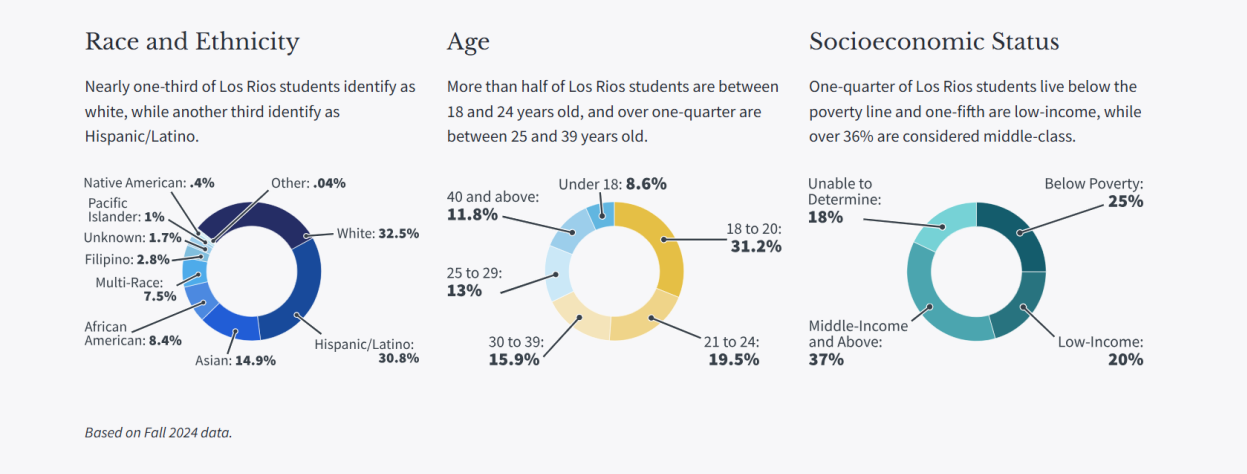


Figure 1 provides a snapshot of the student body, with approximately one-third of students identifying as White and another third as Hispanic or Latino. The age distribution reflects a mix of traditional and non-traditional students, with more than half of the students being between the ages of 18 and 24 and a significant portion aged 25 and older. In terms of socioeconomic status, many students within the district experience financial hardship, with 25% living below the poverty line and another 20% identified as low-income. District enrollment

trends are high, but completion and success gaps have yet to be filled, with students' reported course completion rate at 73 percent in 2023, as shared in a news report done by *The Sa*cramento Bee (Hall, 2024).

Over the last year, the district conducted a space utilization study to better understand how its campus spaces are being used. The primary goal of this study was to inform long-term planning within each college's facilities master plan (Steelcase Applied Research + Consulting, 2025). Although the study incorporated student perspectives on the campus experience, much of its focus centered on utilization, flexibility, and long-term space planning. Findings across the district showed that students desired more community-oriented and flexible spaces that supported collaboration, informal interaction, and easier access to student services, reinforcing the idea that physical and social spaces shape how students experience the campus environment and their sense of connection to the institution (Steelcase Applied Research + Consulting, 2025).

While the space utilization study provided valuable insight into how campus facilities are used, it often emphasized efficiency and capacity rather than how students experience these environments. For example, the study identified potential reductions in classroom space and highlighted opportunities for "real estate savings" through increased utilization and restructuring of campus facilities (Steelcase Applied Research + Consulting, 2025). While the report incorporated student perspectives throughout the study, questions of how physical spaces influence students' sense of belonging, comfort, and connection to the institution are not clearly explored. For community college students, who may spend limited time on campus, the design and accessibility of these spaces may play an important role in shaping their overall experience, which is at the core of this current study.

Literature Review

Section I – Student Belonging and Persistence

Students who feel like they belong at their institutions and within their classrooms perform better, including improvements in motivation, academic achievement, and a higher sense of self-confidence (Tinto, 1975). The feeling of belonging refers to a student's sense of being accepted and validated as they are and as a contributing member of the greater campus community (Strayhorn, 2012). Belonging within the educational setting is a byproduct of institutional trust, which reflects a student's confidence that their institution has their best interests in mind, whether through services, support, transparency, advocacy, reliability, or access to resources (Moon et al., 2025). In his book *College Students' Sense of Belonging,* Strayhorn (2012) emphasizes that scholars define belonging in multiple ways, highlighting that the concept is not fixed or universal. Belonging is deeply personal and shaped by individual expectations, identities, and experiences. What it means to feel connected or to build community differs across students, suggesting that belonging cannot be understood as a one-size-fits-all construct. This study addresses this multifaceted definition by exploring how belonging is experienced and varies based on a student's needs.

Early work by Tinto (1975) underscores the importance of belonging, arguing that persistence in higher education is shaped by students' levels of academic and social integration within an institution. According to Tinto (1997), students who feel connected to their campus community are more likely to develop institutional commitment and remain enrolled. Belonging, therefore, reflects more than comfort; it represents a student's perception that they are accepted, supported, and valued within the broader campus environment.

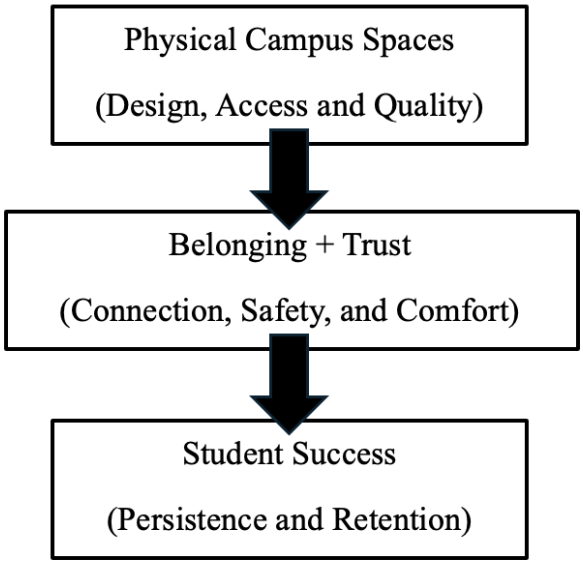
Recent empirical research also supports this claim. A study of 469 university students found that a student's sense of belonging was positively associated with engagement and negatively associated with burnout (Moon et al., 2025). The authors' findings suggest that belonging functions as a measurable predictor of academic engagement and student well-being, as students who feel connected to their institution are more likely to demonstrate both behavioral and psychological forms of engagement. This includes not only participating in academic activities but also maintaining motivation, investing effort in their coursework, and forming meaningful interactions with peers and faculty. In this way, engagement operates as a key mechanism through which belonging influences broader student outcomes. Additionally, a survey conducted by the California Community Colleges Chancellor's Office (CCCO) reported that students who lacked a sense of belonging appeared more likely to leave their institutions, especially among first-generation or students of color (CCCO, 2023). These findings position belonging as a central mechanism influencing student engagement and persistence, ultimately shaping students' ability to remain connected to and succeed within their institution.

Section II – Institutional Trust: A Joint Relationship with Belonging

Belonging is also influenced by the broader campus environment and the messages institutions communicate through their practices and support systems. Research on campus climate suggests that students interpret institutional actions such as access to resources, responsiveness from faculty and staff, and the inclusiveness of campus environments as signals of whether the institution values and supports them (Hurtado & Carter, 1997). These perceptions influence how students develop trust in their college and whether they feel connected to those in that community. Institutional environments that encourage engagement and meaningful interaction can strengthen students' connection to their institution. Supportive practices and

accessible resources encourage students to interact with faculty, staff, and campus services, strengthening their academic and social integration (Kuh et al., 2006). When students experience consistent support and meaningful interaction, they are more likely to feel a sense of belonging that sustains their engagement due to the trust being built upon those interactions. Figure 2 shows this relationship and correlation.

Figure 2 Relationship Between Campus Spaces, Belonging & Trust Attributing to Student Success



While research on belonging and trust has grown significantly within higher education, much of this literature focuses on four-year institutions. Community colleges serve a different student population, many of whom are disproportionately impacted students who commute to campus while balancing employment and family responsibilities alongside their coursework (California Community Colleges Chancellor's Office [CCCCO], n.d.). Students who are disproportionally impacted refer to student groups whose outcomes, such as degree completion, fall significantly below benchmark rates, often reflecting inequities in access to institutional resources, support services, and broader policies that shape student success (California Community College Chancellor's Office, 2013). As students often move quickly between classes, work, and home responsibilities, they may have limited time to explore campus resources or connect with the campus community. In this context, the spaces students encounter during their time on campus may play an important role in shaping whether they feel welcomed, supported, and connected to the institution. Developing a sense of connection to the institution can, therefore, be more challenging for community college students who navigate the college's bureaucracies. At the same time, belonging plays an important role in this environment, as students who feel supported and connected to their institution may be more likely to remain engaged in their studies and within the social landscape (Klinenberg, 2018; Thompson et al., 2023). Understanding how belonging develops within community college environments is, therefore, critical for improving persistence and student success within this area. These conditions highlight the importance of examining the environments and spaces where community college students interact with their institution and how those environments influence their sense of belonging. (LeGrow et al., 2023).

Section III – How Physical Spaces Promote Belonging

Understanding why physical spaces matter draws on broader ideas about how environments shape human experience. Eric Klinenberg's (2018) work on social infrastructure theory helps set the stage here; he draws his research from the impacts of the 1995 Chicago heat wave, which killed over 700 people. While poverty and age are contributing factors to death, Klinenberg discovered that social connections acted as a lifeline for those who survived (Klinenberg, 2018). Based on his study, those who survived lived in areas that were grounded in public shared spaces and had built community ties amongst one another. He argues that places such as libraries, parks, and community centers play a quiet but powerful role in helping people build trust, connection, and a sense of community.

College campuses, in this regard, can be seen as small urban areas; the physicality of colleges resembles the infrastructure of neighborhoods. These environments are bounded spaces with their own physical and social norms. Klinenberg (2018) argues that rebuilding communities requires more than simply repairing physical systems, emphasizing that societies must also "engineer civility" through intentional investments in spaces that bring people together (p. 232). Investments in campus spaces are not simply aesthetic or functional improvements, but efforts that shape how students experience belonging and community within the institution.

While social infrastructure theory highlights the relationship between physical spaces and connection and community, the design of those spaces can also communicate what institutions prioritize. Orr (1993) introduces the concept of architecture as pedagogy, arguing that the design of buildings and physical environments can function as a form of teaching. He suggests that architecture communicates values and priorities through features such as layout, visibility, and the way spaces guide interaction. Spaces can make students feel included or overlooked based on

where services are placed, how open or closed a space feels, and how easy it is to navigate (Johnson, 2021). These perspectives help explain why design and the need for campus spaces may influence the trajectory of a student's success and trust in their institution. When students walk onto campus and see gathering areas that feel warm, visible services that are easy to find, or study spaces that feel comfortable and open, they receive signals that the institution thought about them. These cues influence trust, belonging, and ultimately students' decisions to return. Whether a student stays enrolled and persists can be correlated to the physical landscape surrounding them (Johnson, 2021).

As noted across the literature, the design of study and communal spaces can shape how students interact with their institutions. Research shows that when students have access to flexible spaces, inviting and intentionally designed, they are more likely to collaborate, engage with peers, and feel connected to their institution (Papaioannou et al., 2023; Carnell, 2017). Studies on modern learning environments highlight that classrooms with adaptable seating, natural light, and integrated technology can support more interactive and student-centered learning experiences (Papaioannou et al., 2023). Other work stresses that the design of study nooks, lounges, and informal learning areas can encourage peer interaction and increase students' willingness to remain on campus, especially when these areas feel accessible and comfortable (Carnell, 2017).

Looking beyond the traditional academic spaces, social areas also play an impactful role. Maxwell's (2018) case study on a renovated student union shows this clearly. When a space is intentionally designed with comfortable seating, visible places to gather, and services that students use, it becomes more than just a building. Students felt welcomed, connected, and more rooted in their campus community because the environment invited them to be there. Le Grow et

al. describe student centers as spaces that can feel like a “home away from home” where students can relax, feel safe, build relationships, and belong (2023). The informal spaces students have access can shape how supported and connected they feel.

The development of social capital depends on social infrastructure. A student is able to build social capital when the campus’s physical infrastructure signals and facilitates social interaction. Social infrastructure theory grounds its core arguments in shared environments, such as parks, public gathering spaces, and design that invites social exploration (Klinenberg, 2018). Green spaces, even small ones like courtyards, lawns, or shaded walkways, create moments of calm and belonging, welcoming individuals to garner community. Thompson et al. (2023) compared students’ reported feelings of belonging in green campus areas to those in buildings heavily consisting of concrete infrastructure and found that students who utilized green areas had a higher sense of belonging. Students in that study shared how green spaces gave them a place to pause, gather, and connect beyond their academics. Outdoor areas give students room to breathe and offer low-stress places to socialize, study, or rest between classes. In this way, campus green spaces function similarly to the types of social infrastructure described by Klinenberg (2018), providing settings where informal interaction and shared presence can support trust, belonging, and community formation among students.

Community college students experience campus differently from students at four-year or residential institutions, yet most research on physical space continues to focus on large universities. Community colleges primarily serve racially diverse, first-generation, low-income, and working students who often move quickly on and off campus and may not have the time or flexibility to explore campus spaces in the same way (Davis et al., 2015). These realities mean that the design and placement of physical spaces matter even more. Maxwell’s (2018) case study

of student unions shows how a well-designed space can foster belonging and community, while LeGrow et al. (2023) illustrate how a "home away from home" environment helps students feel grounded, safe, and connected. Thompson et al. (2023) demonstrated that even small green spaces can enhance students' sense of belonging. However, none of these studies speaks to the lives of community college students, where students' time on campus is limited, and their needs are different. There is a gap in the literature here; if physical spaces can positively influence belonging, connection, and comfort in other college contexts, examining how they function within California community colleges is important as well.

California's community colleges have placed significant emphasis on improving retention, persistence, and completion as part of statewide efforts to strengthen student outcomes. If physical spaces contribute to students' sense of trust, connection, and belonging, as demonstrated in research from other higher education settings, then examining how space functions within the distinct context of community colleges becomes essential. Understanding the design, visibility, and accessibility of key areas on campus can provide insight into how everyday environments either support or undermine students' ability to stay engaged and continue their studies. By focusing on physical space within community colleges, this study offers an opportunity to inform how institutions create environments that better meet students' needs and advance systemwide goals related to retention and academic achievement.

Research Design and Methodology

This study examines the following research question within the Los Rios Community College District: In what ways do the design and availability of physical campus spaces influence students' sense of belonging, retention, and persistence? I utilize a mixed methods approach, combining results from a short student survey with first-hand observations of key campus spaces to examine what current physical infrastructure exists and how those spaces contribute to the social infrastructure of those campuses. The survey allows me to identify patterns within students' experiences across the district, and the observational photograph component provides contextual insight on how current physical environments promote or limit interactions on each campus. This approach aligns with the study's focus on social infrastructure, which emphasizes how physical environments shape social behavior and access to resources. Due to the evaluation of human subjects in this project, this study received IRB approval from California State University, Sacramento, and the Los Rios Community College District.

Research Positionality

As the principal investigator and author of this paper, it is important to acknowledge my position in designing and conducting this study. Being a direct student service employee at Folsom Lake College and an alumnus of the Los Rios Community College district, I understand that my experience informed the development of this study, and it may also shape how I interpret the spaces and the survey data. To address this, I center student perspectives through survey data and open-ended responses and use a structured approach to the observational data to maintain consistency.

Online Student Survey

An anonymous online survey was administered using Qualtrics to students across the four colleges within the Los Rios Community College District. The survey was designed to take

approximately five to seven minutes to complete. Participants were recruited through flyers, QR codes, and voluntary sharing of the survey link through faculty and student spaces. Participation was voluntary and anonymous, and no identifying information was collected. The survey included four sections:

The first section of the survey gathers background information about students. Students are asked which Los Rios college is their primary (home) college, followed by enrollment and course/class modality status. This information is used to understand how student engagement may differ depending on their class workload and campus. Demographic questions are also included in the survey, capturing gender, ethnicity, age, and employment status.

The second section focuses on campus usage. Students are asked how frequently they come to campus, the amount of time they spend on campus outside of class, which types of spaces they use, and how frequently. Through open-ended questions, I asked students to share which specific spaces they used the most at their campuses. Additionally, a matrix-style question was used to assess how frequently students used formal academic spaces, such as libraries, tutoring centers, and computer labs, and informal or social spaces, such as student centers, lounges, and outdoor areas. This section helped establish patterns in how students interact with different parts of the campus environment.

Section three examined students' personal experiences and perception of the campus environment; they were asked to share how their campus makes them feel overall. Open-ended questions asked students to identify spaces where they feel supported and areas for improvement. A matrix-style question then prompted students to reflect on their connection to campus and how these spaces influenced their persistence, connection to the college, sense of belonging, and perceptions of campus maintenance.

The final section of the survey measured key study variables using Likert scale questions. Students were asked to indicate their level of agreement with statements related to campus inclusiveness, safety, accessibility, and overall design. Additional items measured students' sense of belonging, connection to other students, perceived institutional support, and confidence in reaching their educational goals. The survey also included items linking physical spaces to student outcomes, such as whether campus environments affect students' sense of connection and likelihood of remaining enrolled. The full survey instrument is included in Appendix A.

Field Observation/ Photographic Data

Observational data is collected using naturalistic observations, where photographs of physical infrastructure were taken in their natural setting; subjects are not the focal point of any of the observational data collected. Observations focused on the design, layout, and accessibility of campus spaces, including features such as seating, gathering areas, visibility of services, tech accessibility, and overall maintenance. The analysis considered each space's intended use, including its support for individual use or group interaction. This included identifying single-use spaces, such as quiet study areas, and group-oriented spaces, such as collaborative seating or open gathering areas. Observations also considered whether spaces appeared to be "inviting," meaning they encouraged students to enter, remain, and interact, or whether they appeared more closed or isolated in nature.

Additional observations examined the degree to which spaces functioned as communal or isolated environments. Communal spaces that supported interaction and shared use, while isolated spaces are those that limited interaction or appeared less conducive to social engagement. Observations assessed whether spaces appeared to encourage students to stay, based on factors such as comfort, seating availability, layout, and overall atmosphere.

The observations also documented the physical condition and design of spaces, including whether environments felt organic and open or more structured and heavily built. Observations also assessed overall upkeep, noting whether spaces appeared well-maintained or in decline, as these conditions may shape students' perceptions of the environment. In addition, attention was given to whether spaces supported students' academic and technological needs, including access to outlets, Wi-Fi, computer stations, and other features that enable studying and extended use of campus spaces.

Multiple photo observations were collected across each campus to capture a range of physical spaces. From these, a subset of 15 images per campus was selected for analysis to ensure consistency and representation across space types. The observations provide additional context for understanding how campus space functions and whether they appear to support interaction, comfort, and accessibility. To ensure a consistent and equitable evaluation of the photographic observations, all metrics are assessed using a five-point scale, with 1 indicating low presence and 5 indicating high presence. Table 1 illustrates the observational guide used to analyze field data.

Table 1. Average Observational Scores by Campus Guide

Image	*Los Rios Campus*	*Accessibility & Inclusivity*	*Comfort & Welcomeness*	*Institutional Signaling*	*Green Space & Natural Light*	*Technological Inclusivity*	*Social Capital*
....	.....	...	...	...	...	...	...

Note. Scores are based on a 5-point scale (1 = low, 5 = high).

Additionally, Table 2 provides operational definitions for each category, along with examples representing the lower and upper ends of the observational scale.

Table 2. Observational Rubric Categories and Scale Descriptions

Category	*Definition*	*Example of a Low Score (1)*	*Example of a High Score (5)*
Accessibility and Inclusivity	Measures how accessible and inclusive a space is for students.	Poor signage, inaccessible layouts, isolated seating.	Open layouts, accessible design, visible services, flexible seating.
Comfort and Welcoming Environment	Assesses whether a space feels inviting and comfortable.	Harsh or no lighting, uncomfortable seating, outdated spaces.	Comfortable seating, warm lighting, welcoming atmosphere.
Institutional Signaling	Evaluates what the space communicates about institutional care and investment.	Poor maintenance, broken furniture, neglected appearance.	Clean facilities, updated resources, cohesive upkeep.
Nature and Environmental Quality	Measures the presence of natural elements and environmental quality.	Limited greenery, little natural light, excessive concrete.	Trees, shaded seating, natural light, green spaces.
Technology and Productivity Support	Assesses access to technology and academic support resources.	Few outlets, outdated equipment, limited study support.	Charging access, WIFI access, collaborative study resources.
Communal Function (Social Capital)	Evaluates how well a space supports interaction and connection.	Isolated seating, little opportunity for gathering.	Group seating, open lounges, collaborative environments.

Examples of both high-promoting and low-promoting social infrastructure are presented below in Figures 3 and 4 to illustrate the observational scoring process used throughout this study. These images demonstrate how campus spaces are evaluated using the observational rubric, with one example representing a highly rated space across the categories and the other representing a lower-rated space. Together, these examples serve as visual references for how the 1–5 scoring scale was applied during the observations.

Figure 3. Example of High-Promoting Social Infrastructure on Campus

Figure 4. Example of Low-Promoting Social Infrastructure on Campus

When paired with survey responses, the observational data help to strengthen the analysis by linking students' reported experiences with the physical characteristics of their campus environments.

Findings and Analysis

Findings for this study will be broken down into two main sections. First, I will go over the field observation by each college, and then second, I will go over the student survey results using descriptive statistics. Each observational image and its respective score are included in Appendix B.

Section I: Observational Findings

American River College – ARC

Across ARC's campus, there is a clear mix of older and newer buildings, which shapes how different spaces feel. Older spaces often have more basic seating and show fewer signs of upkeep, while newer buildings include soft seating, spaces for group interaction, and more access to natural light and outdoor elements. American River College revealed moderate variations across the six categories. As shown in Table 3, spaces at ARC scored highest in accessibility (M = 3.87), followed by communal function/social capital (M = 3.37) and institutional signaling (M = 3.33). These findings suggest that many campus spaces are relatively easy to locate and enter and are designed in ways that support student presence and interaction. The moderate-to-high communal scores further show that certain environments foster informal engagement and opportunities for connection among students.

Table 3. Average Observational Scores American River College

Los Rios Campus	*Accessibility & Inclusivity*	*Comfort & Welcomeness*	*Institutional Signaling*	*Green Space and Natural Light*	*Technological Inclusivity*	*Social Capital*
ARC	3.87	3.27	3.33	3.07	1.87	3.37

Figures 5 through 7 show examples of spaces that promote high accessibility, communal engagement, and well-kept spaces that send positive signals from the institution.

Figure 5. American River College Library Area

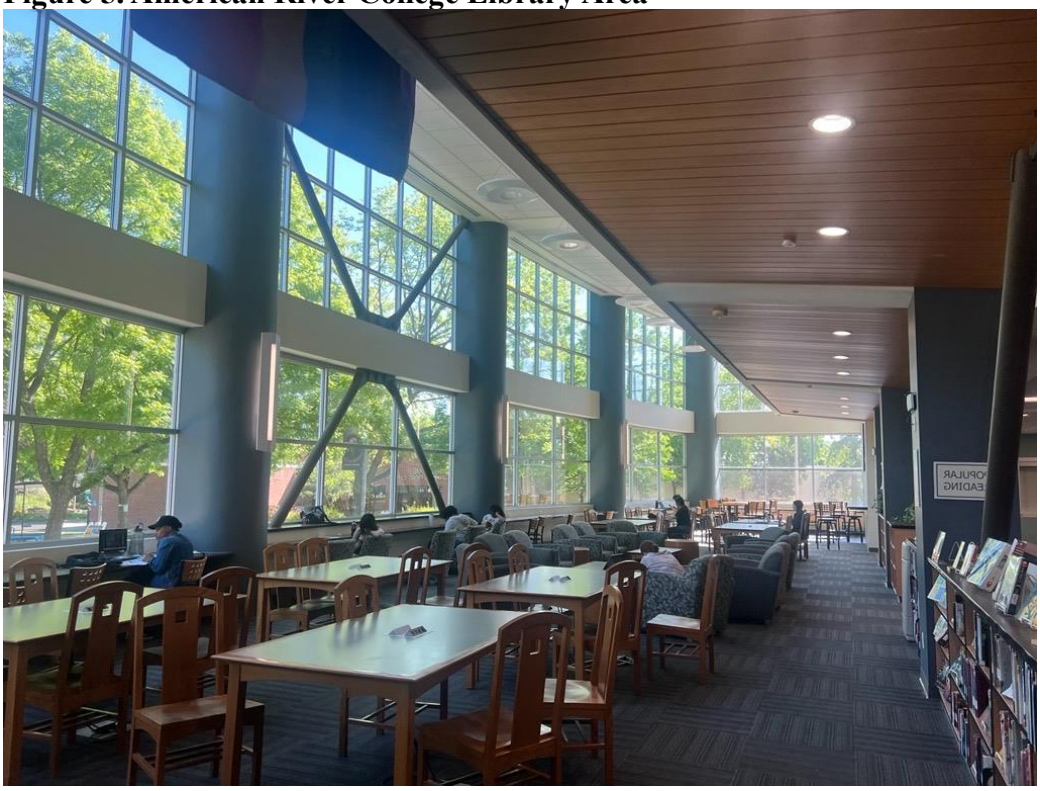


Figure 6. American River College UNITE Center

Figure 7. ARC Outdoor Seating Area

Additionally, the scores point to the overall function of these spaces. One that sticks out is the inclusivity of technology, which received the lowest score (M = 1.87), indicating that many observed areas lacked key resources such as accessible outlets, reliable work surfaces, or infrastructure conducive to academic work. While spaces may support social interaction, they may not consistently support sustained academic engagement, particularly for students who rely on campus environments for studying between classes. Figure 8 shows an example of this, with ample seating and chairs but no access to charging stations or accessible ports.

Figure 8. ARC Dining Hall

Mid scores in comfort (M = 3.27) and environmental quality (M = 3.07) point to a more varied experience across spaces. While many areas are generally usable, they often lack features that would make them feel more inviting or supportive for longer periods of time, such as comfortable seating, intentional layout, or access to natural elements like natural light, outdoor settings, or green space. As a result, these spaces may function for short-term use but do not consistently encourage students to stay or fully engage with the environment.

Cosumnes River College – CRC

CRC is largely characterized by open quad spaces and wide outdoor areas; the college is built around a large water fountain and a built stage in the quad. Much of the seating and student services appear to be located within one campus building, which reflects an older facility. Outdoor spaces primarily consist of lawn and walkways, with limited seating available. Where

seating is present, it is often minimal or shows signs of limited upkeep, such as isolated benches without shade or surrounding infrastructure.

Table 4. Average Observational Scores Cosumnes River College

Los Rios Campus	*Accessibility & Inclusivity*	*Comfort & Welcomeness*	*Institutional Signaling*	*Green Space and Natural Light*	*Technological Inclusivity*	*Social Capital*
CRC	3.07	2.87	2.8	2.8	2.33	3.07

Observations at CRC reflected relatively consistent scores across all six categories, with less variation compared to ARC. As shown in Table 4, accessibility/inclusivity (M = 3.07) and social capital (M = 3.07) stood among the higher-rated areas, suggesting that spaces across campus are generally easy to access and provide some opportunities for interaction and connection among students. Figures 9 and 10 provide an example of this.

Figure 9. CRC quad area

Figure 10 CRC library study and workspaces

Across the remaining categories, scores fall; Comfort and welcomeness (M = 2.87), or how welcoming a space feels, along with institutional signaling (M = 2.80), or how well the institution has maintained and upkept the space, and green space and natural light (M = 2.80), point to more neutral conditions across many spaces. While these environments act functionally, they lack features that make them feel more inviting or clearly cared for, such as intentional layout, visible upkeep, or access to natural elements. Figure 11 shows a bench that has been overtaken by overgrown vegetation, making the space inaccessible for students. Furthermore, Figure 12 highlights a different challenge, where seating is present but placed in isolation, with no nearby amenities or supportive features to encourage use.

Figure 11. Overgrown vegetation limiting usability of built-in seating at Cosumnes River College.

Figure 12. Isolated seating lacking surrounding features at CRC

In addition, technological inclusivity (M = 2.33), or the presence and accessibility of technological resources to support use of the space, remained one of the lower-rated categories, indicating that many spaces do not consistently support academic productivity. Limited access to outlets or work-friendly setups restrict how students use these spaces beyond short-term or informal purposes.

Folsom Lake College- FLC

At Folsom Lake College, the campus felt cohesive and had a modern environment, with buildings that share a consistent design and create a uniform, well-maintained appearance. The layout is open, centered around a large quad and expansive grass area that contribute to a clean and visually organized setting. Seating across campus appears more limited in certain areas, particularly outdoors, where shaded seating options are less available despite the amount of open

space. Indoor spaces, such as cafeterias and study areas, reflect a similar level of consistency, with repeated seating styles and layouts across buildings. While this creates a cohesive feel, it also results in limited variation in how spaces can be used. Some newer buildings incorporate more intentional design features, including small areas for individual or group use, such as nooks for studying or gathering before class.

Table 5. Average Observational Scores Folsom Lake College

Los Rios Campus	*Accessibility & Inclusivity*	*Comfort & Welcomeness*	*Institutional Signaling*	*Green Space and Natural Light*	*Technological Inclusivity*	*Social Capital*
FLC	4.07	3.13	2.93	2.20	1.93	3.33

As shown in Table 5, spaces scored highest in how easy they are to access and navigate (M = 4.07), followed by their ability to support interaction and connection among students (M = 3.33). This suggests that spaces across campus are generally approachable and provide opportunities for students to gather and engage with one another. Figure 13 depicts the college's welcome center, where there is an array of seating and gathering options. Figure 14 in the college library adds to this sentiment; the space is designed with soft seating arranged in a way that feels comfortable and inviting for students. The natural light and overall layout create a calm environment that supports both studying and casual interaction, making it a space where students would feel comfortable staying for longer periods of time.

Figure 13. FLC Welcome Center showing a variety of places for students to gather

Figure 14. Welcoming study space with comfortable seating and natural light at FLC

Scores related to how welcoming a space feels (M = 3.13) and how well the institution has maintained and upkept the space (M = 2.93) fall within a moderate range. While the campus presents a clean and cohesive environment overall, this does not always translate into spaces that feel highly inviting or intentionally designed for varied student use. Lower-quality spaces often emerged within older buildings, where furniture appeared repurposed and arranged in ways that reflected a lack of intentional design. Figure 15 captures a lounge area with mismatched and outdated furniture that unintentionally signals that it was put together without a clear purpose, making it feel less intentional and less welcoming for students.

Figure 15. FLC Lounge area featuring outdated and mis-matched furniture

Spaces showed lower scores in their incorporation of natural elements (M = 2.20), such as light, greenery, or outdoor access, and in the availability of technological resources to support use of the space (M = 1.93). Despite the campus's open layout and large outdoor areas, these spaces may not consistently integrate features that support comfort or extended use, such as shaded seating or intentionally designed outdoor study areas. Similarly, limited access to technological resources restricts how students can use these spaces for academic purposes.

Sacramento City College – SCC

At Sacramento City College, the campus is highly cohesive and historic, with brick buildings that create a consistent and recognizable aesthetic. The layout feels easy to navigate, supported by clear and frequent signage throughout campus. The central quad includes open grass areas for students to gather, along with a wide range of seating options, including shaded seating, tables with umbrellas, and benches that are built directly into the campus infrastructure.

Seating is integrated throughout the environment, including building edges and within structural features such as planters, creating consistent opportunities for students to sit and occupy space across campus.

Campus services are distributed across multiple buildings rather than centralized in one location, requiring students to move throughout the campus and engage with different areas. This layout encourages navigation and familiarity with the campus environment. Some spaces, such as the library, reflect a more traditional and uniform design, with heavy use of wood and a more formal atmosphere that feels less inviting. Newer buildings incorporate more modern design elements, including spaces that support both individual and group use, while still maintaining the campus's overall aesthetic. In contrast, hallways and interior walkways within academic buildings offer limited opportunities for students to gather, with seating that is either minimal or arranged in ways that feel more individual and less conducive to group interaction.

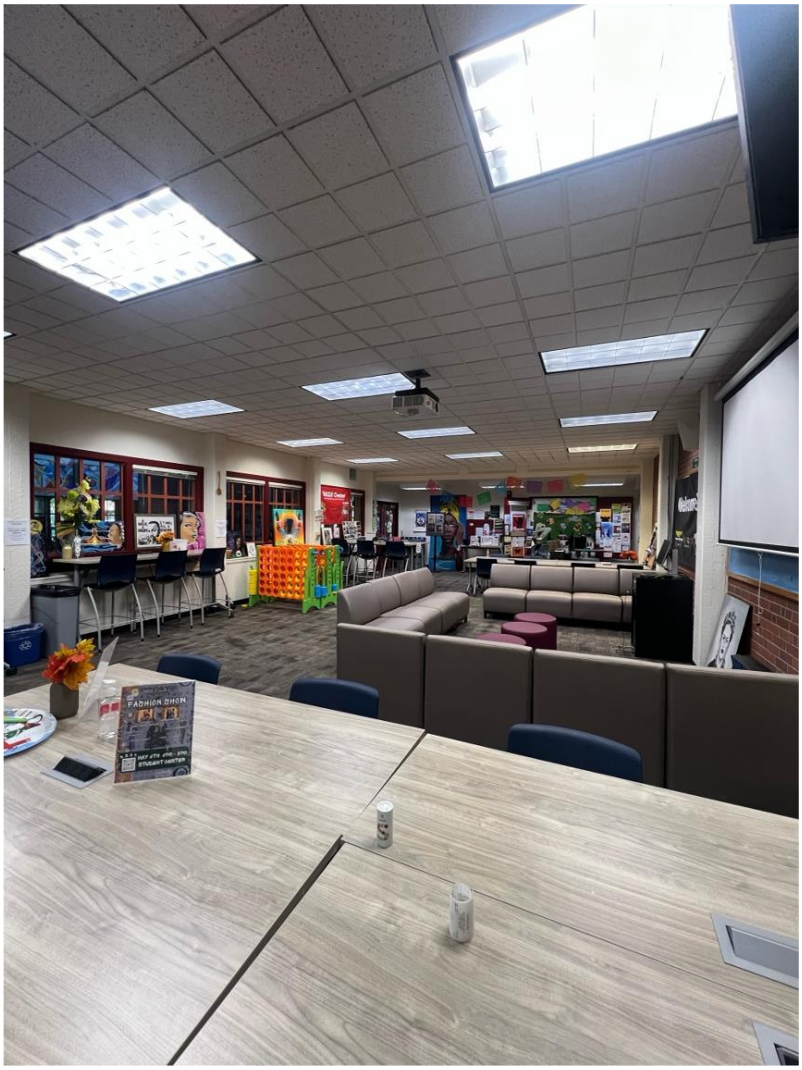
Table 6. Average Observational Scores Sacramento City College

Los Rios Campus	*Accessibility & Inclusivity*	*Comfort & Welcomeness*	*Institutional Signaling*	*Green Space and Natural Light*	*Technological Inclusivity*	*Social Capital*
SCC	3.86	3.11	3.11	2.71	2.07	3.43

As shown in Table 6, spaces scored higher in how easy they are to access and navigate (M = 3.86) and in their ability to support interaction and connection among students (M = 3.43). This suggests that the campus layout, along with the consistent presence of seating throughout, supports both movement across campus and opportunities for students to gather and engage with one another. Figures 16 and 17 show outdoor and indoor communal spaces.

Figures 16. SCC Quad

Figure 17. SCC Rise Center



Scores related to how welcoming a space feels (M = 3.11) and how well the institution has maintained and upkept the space (M = 3.11) fall within a moderate range. While the campus presents a cohesive and well-maintained appearance overall, this does not always translate into spaces that feel equally inviting across all areas. For example, some indoor spaces, such as the library, reflect a more formal and uniform design that feels less approachable for students. Figure 18 shows the SCC library with an older aesthetic of wood accents and hard furniture. The space lacks both soft seating and open area design.

Figure 18. SCC Library space with rigid seating layout and limited comfort

Lower scores were observed in how spaces incorporate natural elements (M = 2.71), such as light, greenery, or outdoor access, and in the availability of technological resources to support use of the space (M = 2.07). While outdoor areas include seating and open space, these findings suggest that not all environments consistently integrate features that support comfort or extended use. Similarly, limited access to technological resources can shape how students are able to use these spaces for academic purposes.

All Los Rios Campuses

Observational findings revealed noticeable variation across campuses. particularly in how spaces supported accessibility, comfort, and opportunities for interaction. Table 7 illustrates scores amongst all four campuses in the Los Rios District.

Table 7. Observation Scores Amongst Los Rios Campuses

Los Rios Campus	*Accessibility & Inclusivity*	*Comfort & Welcomeness*	*Institutional Signaling*	*Green Space & Natural Light*	*Technological Inclusivity*	*Social Capital*
ARC	3.87	3.27	3.33	3.07	1.87	3.37
CRC	3.07	2.87	2.8	2.8	2.33	3.07
FLC	4.07	3.13	2.93	2.20	1.93	3.33
SCC	3.86	3.11	3.11	2.71	2.07	3.43

Folsom Lake College received the highest score in accessibility and inclusivity (M=4.07), reflecting the campus's modern layout, navigability, and cohesive design. However, despite its newer infrastructure, FLC received the lowest score in green space and natural light (M=2.20), as many outdoor areas lacked shaded seating or intentional gathering spaces. In contrast, Sacramento City College received the highest social capital score overall (M=3.43), with observations noting integrated seating, distributed student spaces, and layouts that appeared to encourage students to move throughout campus and remain in shared environments. Similarly, American River College received the strongest institutional signaling score (M=3.33), supported by updated student spaces and renovated gathering areas, although these were occasionally contrasted by older spaces that appeared less maintained or disconnected from surrounding environments.

Cosumnes River College generally received lower scores across categories, particularly in comfort and welcomeness and institutional signaling, suggesting that while open spaces were present, they did not consistently encourage interaction or extended use. Across all campuses, technological inclusivity received the lowest district-wide average, indicating that many campus environments may not fully reflect the evolving technological and productivity needs of students. When considered alongside survey findings showing that libraries, study areas, and food spaces are the most frequently used environments, these observations suggest that students tend to

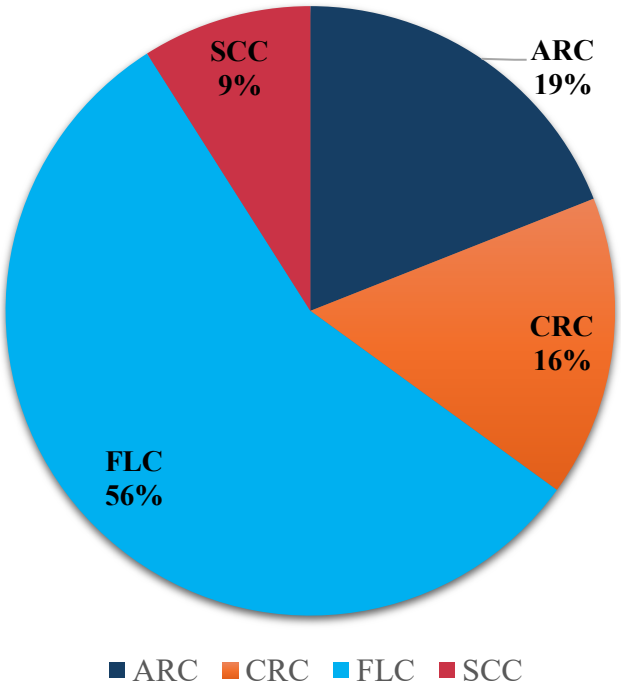
gravitate toward spaces that provide both functionality and opportunities for comfort or familiarity. At the same time, the variation between campuses reinforces that the presence of space alone does not necessarily foster connection; rather, how spaces are designed, maintained, and integrated into campus life appears to shape whether students feel encouraged to remain, interact, and engage with their campus environment.

Section II Student Survey Data

Demographic Breakdown

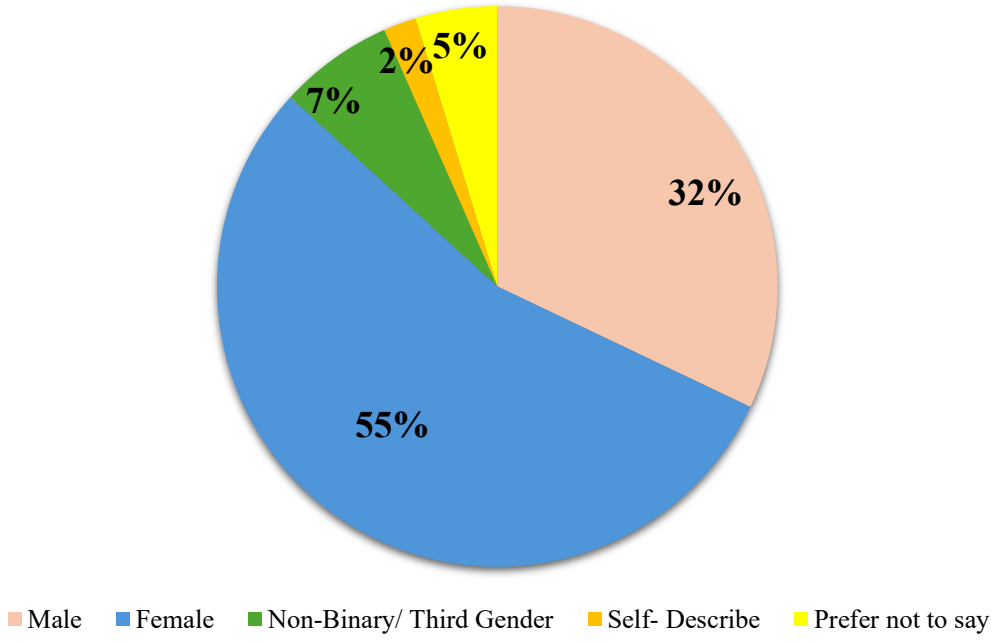
This section provides an overview of the respondent demographic breakdown. A total of 156 responses were recorded for the survey, all of which identified as current students in the Los Rios district. As shown in Figure 19, 138 respondents identified their primary campus, including American River College (19%), Cosumnes River College (16%), Folsom Lake College (56%), and Sacramento City College (9%). While response rates fluctuate by campus, this sample provides an overview of student experiences across the district, including the different campus spaces.

Figure 19. Respondent Home College

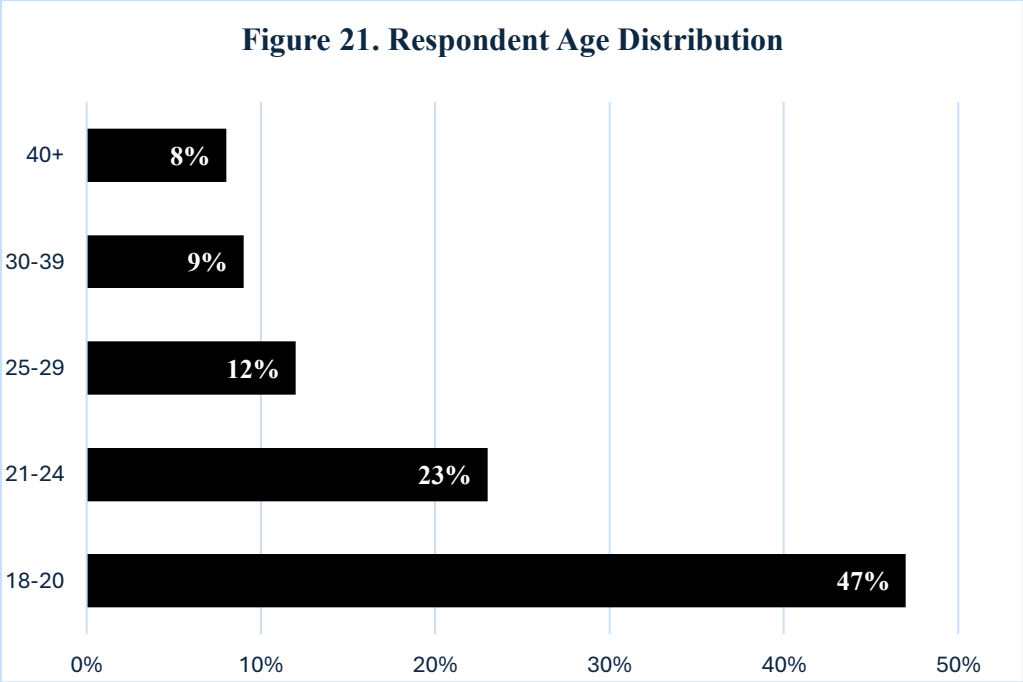


Next, respondents who chose to identify are asked about their gender identity. Figure 20 shows the distribution; 55% of respondents identified as female, followed by 32% identifying as male. A smaller proportion identified as non-binary or third gender (approximately 7%), while 2% selected self-describe and 5% preferred not to disclose their gender identity.

Figure 20. Respondent Gender ID



When analyzing the age of the respondents, the sample is largely composed of traditional college-aged students. Figure 21 illustrates this. Nearly half of respondents (47%) fall within the 18–20 age range, followed by 23% between the ages of 21–24. Smaller proportions are represented among older age groups, including 12% aged 25–29, 9% aged 30–39, and 8% aged 40 and above. This distribution indicates that the sample is concentrated among younger students, particularly those in the early stages of their college experience.



When looking at racial identity, the sample reflects a relatively diverse composition. As shown in Table 8, the largest proportion of respondents identified as White (30%), followed by Asian (17%) and Hispanic/Latino (16%), indicating that no single racial or ethnic group constitutes an overwhelming majority. Additional representation includes students identifying as Filipino (8%) and multi-racial (8%), as well as 7% who selected self-describe. Smaller proportions identified as African American/Black (5%) and Pacific Islander (2%), while 1% selected unknown and 6% preferred not to disclose their race or ethnicity. Notably, the presence of multi-racial and self-described identities suggests that a portion of the sample does not fit within traditional categorical groupings.

Table 8. Respondent Race and Ethnicity

Race	# Student Respondent	Percentage
African American/ Black	5	5%
Asian	18	17%
Filipino	9	8%
Hispanic/Latino	17	16%
Pacific Islander	2	2%
White	32	30%
Unknown	1	1%
Multi-Race	9	8%
Self-Describe	8	7%
Prefer Not to Answer	6	6%
Total # of Respondents:	n=106	100%

Table 9 presents the distribution of enrollment status, course modality, and employment among respondents. The sample reflects a balanced distribution between full-time (55%) and part-time (45%) enrollment. In terms of course modality, the majority of respondents reported taking hybrid classes (53%), followed by fully in-person (26%) and fully online (21%) formats. This pattern suggests that many students engage with campus spaces intermittently rather than consistently.

Table 9. Student Enrollment, Course Modality, and Employment Characteristics

Student Characteristics	***Survey Respondents***
Student Enrollment Status	
Full-time Enrollment	55%
Part-time Enrollment	45%
Student Class Modality	
Fully in Person Class Modality	26%
Hybrid Class Modality	53%
Fully Online Class Modality	21%
Work Status	
Employed, Full-Time	8%
Employed, Part-Time	58%
Not Employed	33%

Employment patterns further highlight variation in students' external commitments. Most respondents reported being employed, with 58% working part-time and 8% working full-time, while 33% indicated they are not employed. The prevalence of part-time employment suggests that many students may be balancing academic responsibilities alongside work, which may influence how they engage with the campus, and further reflects the commuter and working nature of the student population.

Table 10. Respondent Campus Distribution for What Spaces Students Use (Q8)

	ARC	CRC	FLC	SCC	All Los Rios
Library	54%	73%	70%	75%	68%
Study room/ quiet study spaces	42%	41%	57%	50%	51%
Open lounge seating	29%	23%	41%	17%	34%
Student center	46%	36%	46%	33%	43%
Cafeteria/ food area	33%	68%	53%	33%	50%
Outside seating/ courtyard/lawn	25%	45%	43%	42%	40%
Tutoring center	17%	36%	19%	33%	23%
Counseling office	4%	23%	27%	33%	23%
Computer lab	4%	9%	14%	17%	12%
Basic needs center	8%	18%	11%	0%	11%
Makerspace/ STEM lab	8%	9%	20%	0%	14%
Cultural/ identity-based center	8%	27%	7%	17%	12%
I usually leave campus right after class	25%	9%	24%	8%	20%
Other	25%	18%	6%	8%	12%

ARC	CRC	FLC	SCC
24	22	70	12
		Total Respondents n=	**128**

When asked which spaces students use while on campus (Question 8), responses showed a clear pattern in how students move through and engage with campus environments. As shown in Table 10, the library was the most consistently used space across the Los Rios campuses, with

68 percent of respondents reporting use of the space. This was followed by study rooms and quiet study spaces (51%), cafeteria or food areas (50%), student centers (43%), and outdoor seating or courtyard areas (40%). Open lounge seating was also commonly used, with 34 percent of students reporting use of these spaces. Together, these findings suggest that students frequently utilize spaces that support both academic productivity and informal interaction throughout the day.

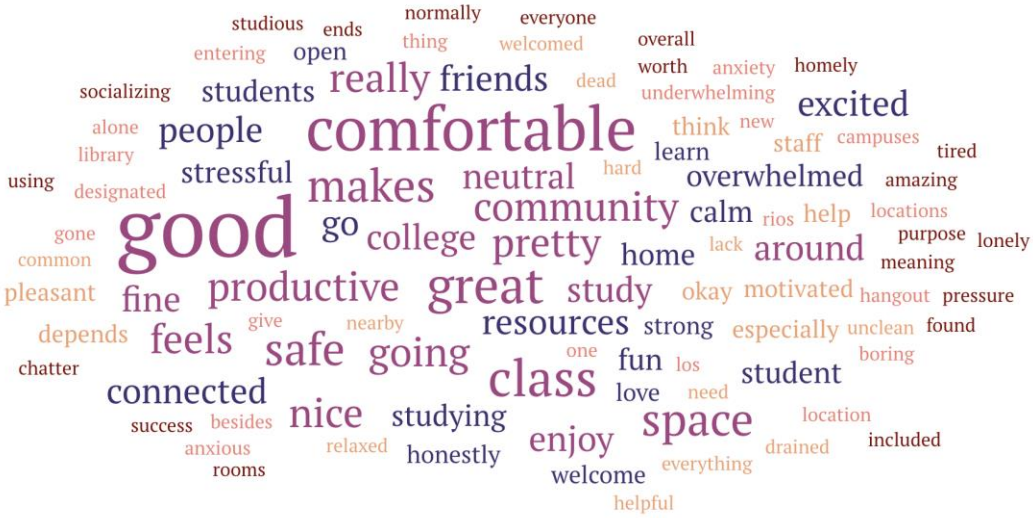
In contrast, more specialized or service-based spaces are reported less frequently. Tutoring centers and counseling offices were each used by 23 percent of respondents, while makerspaces or STEM labs (14%), computer labs (12%), cultural or identity-based centers (12%), and basic needs centers (11%) reflected lower levels of reported use. Additionally, 20 percent of students indicated that they usually leave campus immediately after class. This finding suggests that while many students engage with campus spaces beyond the classroom, a notable portion primarily use campus for instructional purposes rather than extended engagement or community-building activities.

Survey responses indicate that students are regularly present on campus throughout the week. The largest share of respondents reported being on campus four days per week (27.5%), followed by two days (18.8%) and five days (15.2%), with an average of approximately 3.2 days. Time spent on campus outside of class was more varied. The most common response was three to five hours per week (25.4%), while a portion of students reported little to no time beyond their coursework, including those reporting no time (15.9%) or less than one hour (15.2%).

When asked how campuses made them feel overall, students described a range of experiences that leaned generally positive, but often moderate in tone. Common responses included words such as “good,” “comfortable,” “safe,” and “productive,” alongside more neutral

responses such as “fine” or “okay.” These patterns suggest that while campus spaces are often perceived as functional and supportive, they do not consistently evoke strong positive feelings. Common themes from open-ended responses are visualized in Figure 21, where terms such as “comfortable,” “good,” “productive,” and “community” appear prominently.

Figure 21. World cloud depicting trends on how Los Rios campuses make students feel



At the same time, responses also reflect a mix of negative experiences as well. While many students described feeling calm, connected, or motivated, others reported feelings of stress, anxiety, or being overwhelmed. In several cases, students expressed both experiences simultaneously, describing campus as a place that can support academic focus while also contributing to pressure related to coursework. Student experiences also appear to vary depending on context. Several responses noted that feelings about campus depend on factors such as the specific space being used, the presence of peers, or the purpose of being on campus. For some students, campus was described primarily as a place to attend class and leave, while

others highlighted the importance of community, social interaction, and spaces that feel more welcoming.

Survey responses related to belonging and connection indicate that students generally report positive, but moderate, levels of connection to their campus environment. Responses were measured on a five-point scale (1 = strongly disagree to 5 = strongly agree). Students reported high levels of agreement with statements related to campus climate, including that campus spaces feel welcoming and inclusive (M = 4.11) and that they feel safe on campus (M = 4.11). These findings are also reflected in the distribution of responses, with a majority of students indicating agreement or strong agreement with both statements.

Students expressed more moderate perceptions of belonging and institutional support. Students reported agreement with feeling a sense of belonging (M = 3.87) and feeling supported by their college (M = 3.68), though these items included a greater number of neutral responses. For example, 16 students selected neutral when asked about belonging, and 17 selected neutral regarding feeling supported, suggesting that these experiences are not consistent across all students.

Perceptions of the physical environment also reflected moderately. Students generally agreed that the layout of the campus supports movement between classes, study, and services (M = 3.76), and that campus spaces are well-designed for students (M = 3.85). However, responses showed variations, suggesting that students do not experience campus spaces in the same way. Differences here are most noticeable when looking at social connections; students reported lower levels of agreement with feeling connected to other students (M = 3.34) compared to other measures. This is also reflected in the distribution of responses, where more students selected neutral (n = 27) or somewhat agree (n = 35), and fewer strongly agreed (n = 17). This suggests

that while students may feel safe, supported, and able to navigate campus spaces, stronger feelings of peer connection are less consistent.

The portion of the findings that is particularly meaningful in understanding is the relationship between campus spaces, student connection, and broader student outcomes. Students agreed that physical campus spaces affect how connected they feel (M = 4.02), and that feeling connected to campus makes them more likely to stay enrolled (M = 4.13). Students also reported high levels of confidence in their ability to reach their educational goals (M = 4.12). Taken together, these responses suggest that students recognize a clear link between the campus environment, their sense of connection, and their ability to persist. The desire to connect and engage with the campus is present amongst those who choose to be in these campus spaces. This is further reflected in open-ended responses, where students identified specific campus spaces they would improve, pointing to gaps in comfort, maintenance, and opportunities for connection. Many of these responses focused on outdoor spaces and the lack of accessible, intentional seating. For example, one student noted that "there's not a lot of seating… I usually end up sitting on the grassy regions because seating is usually taken," while another simply stated, "hangout spaces, there are none." Others emphasized the need for more shaded and usable environments, suggesting "more private areas like shady trees" and "more outdoor campus spaces so that students have a spot to organize, explore, socialize, and study." Students also pointed to broader design and functionality issues, particularly related to outdated or uninviting spaces. One student described indoor and outdoor areas as lacking "chill seating" and being "outdated," while another expressed a desire for more interactive environments, such as "spaces for students to hang out and decompress." These responses reinforce earlier findings,

highlighting that while students are using campus spaces, many do not feel intentionally designed to support comfort, interaction, or just to be.

Discussion

Both the observational data and the student survey data indicate different levels of campus impact and how students interpret physical environments. Across the Los Rios district, spaces appear to support presence and productivity, but are less consistent in fostering connection, interaction, and sustained engagement. This suggests that while campus environments are meeting basic academic needs, they are not always operating as spaces that encourage students to remain, gather, or build relationships with one another.

Taking Eric Klinenberg's theory of social infrastructure and applying it to this dynamic, it becomes visible how the role of physical spaces shapes social interaction and community. Social infrastructure is not simply about the availability or the existence of space, but about how spaces are designed, maintained, and experienced in ways that invite people to connect. While students are present in these spaces, presence alone does not lead to connection or the feeling of belonging, as reflected in the moderate levels of belonging ($M = 3.87$) and weaker reports of peer connection. The findings show how campus spaces appear to function more as sites of individual use rather than shared environments that actively support interaction.

Differences in how campuses are designed and maintained further illustrate this dynamic. Observational findings show that spaces lacking accessible seating, shade, or a clear purpose often limit how students engage with them. At Cosumnes River College, for instance, outdoor areas were present but lacked sufficient or well-maintained seating, while at American River College, inconsistencies between older and newer buildings created uneven experiences across spaces. Even at Folsom Lake College, where environments felt clean and cohesive, spaces often appeared uniform and lacked clearly defined gathering areas. In contrast, Sacramento City College provided more integrated seating throughout campus, aligning with slightly stronger

ratings related to interaction and communal use. These patterns inform the idea that design choices shape not only how spaces are used, but also what kinds of interactions are possible within them.

This relationship between space and experience parallels David Orr's (Orr, 1993) concept of architecture as pedagogy, which argues that built environments communicate institutional priorities. Spaces that feel intentional, maintained, and inviting signal that students are expected to gather, engage, and remain on campus. Having a picnic bench in the middle of a dry dirt area, with no shade, no other tables, and away from other spaces signals isolation and discomfort, suggesting to students that these are temporary spaces to use but not to retain them.

Physical spaces create a means for connection amongst peers; the gap in this at the community college level becomes most evident when considering students' reported experience of belonging and connection to their fellow students. While students generally feel safe (M = 4.11) and report that campus spaces are welcoming (M = 4.11), they are less likely to report strong connections with other students (M = 3.34); spaces are not consistently structured to support the kinds of repeated interactions that build familiarity, trust, and community over time. Without environments that encourage students to remain, gather, and interact informally, opportunities for connection dwindle, even when students are physically present on campus.

Lastly and most importantly, a student's experience based on their campus spaces contributes to their desire to persist. Students strongly agreed that physical campus spaces influence how connected they feel (M = 4.02) and that feeling connected makes them more likely to stay enrolled (M = 4.13). This aligns with previous research on student persistence (Tinto, 1975), which stresses the role of social and institutional integration in supporting continued enrollment. In this context, the findings suggest that improving the design and intentionality of

campus spaces is not only a matter of comfort or aesthetics but also a key factor in supporting student success and their desire to stay committed to their education within their institutions.

Recommendations

Given the findings of this study, there is a need for institutions to be more intentional about their campus environments and how they redefine serving and retaining students. While community colleges have made significant investments in programs, services, and other initiatives, the physical environments where students spend their time need to be reconsidered as a priority. Based on this study, the following recommendations for practice and practitioners are proposed:

1. Establish standards for highly used student spaces - Spaces with the highest student traffic, such as libraries, study areas, and food spaces, should be regularly evaluated and updated to meet student needs.
2. Invest in spaces that support connection, not just function - Institutions should prioritize environments that encourage students to remain on campus and interact with others, recognizing that these experiences contribute to belonging and persistence.
3. Center student voice in space planning and decision-making - Institutions should actively gather and incorporate student input when designing and updating campus spaces. Rather than focusing only on the physical space itself, planning efforts should reflect how students experience, use, and move through these environments.

Future Research and Limitations

This study merely scratches the surface of social infrastructure research at the community college level. Recognizing that there is something meaningful to explore, it opens a door for future researchers and changemakers. While I think these findings point to an important area of new inquiry, there are limitations to this study. First, the total number of survey responses varied across campuses, with some campuses more represented than others; this may have influenced how findings reflect the broader Los Rios district experience. Additionally, responses were voluntary and distributed through the principal investigator's network, including select campus spaces and online community forums. While an effort was made to reach a broad range of students, the sample may reflect the perspectives of those who are more engaged or more willing to share their experiences. Observational data was collected at specific points in time and may not capture all campus social spaces the institution has to offer. Though the study examined key social spaces, the observations were still shaped by the researcher's interpretation and accessibility constraints. Lastly, I focus on one community college district, which may limit the generalization of the findings. Although this context provides insight into student experiences within Los Rios, campus design, resources, and student populations may differ across other institutions

Future research can build on these findings by further exploring how campus spaces shape student experience and persistence. They may consider the following:

1. Measuring actual space usage. This study focuses on whether spaces exist and how they are perceived; future research could track how frequently spaces are used, using tools such as GIS mapping, occupancy data, or institutional usage reports to better understand patterns of student presence.

2. Following students over time would allow researchers to examine how engagement with campus spaces influences longer-term outcomes, including persistence, transfer, and educational attainment.
3. Explore how campus space use relates to broader academic outcomes, such as GPA, transfer rates, and completion.
4. Incorporating variables such as academic performance and socioeconomic status.
5. Assessing how staffing, campus climate, and access to student services interact with physical space to influence belonging and engagement, recognizing that space alone does not fully explain student experience.

Conclusion

A park bench, a table, or a tree with space to lie down; these are more than places; these create an opportunity for people to pause, remain in place, and engage with those around them. Even in quieter environments, such as study areas, spaces can still foster connection over time. The same students who repeatedly occupy the same space may begin to recognize one another, and what begins as shared use of a space can develop into interaction and familiarity. In this way, even small design features can influence whether belonging is possible. This study set out to examine how physical campus spaces shape student outcomes and promote social infrastructure. Findings show that while students are regularly present on campus and use a range of available spaces, these environments do not consistently support strong connections or sustained engagement beyond academic.

These findings suggest that conversations about student success need to go beyond programs, policies, and pathways and consider the environments students move through every day. This is not to say that physical space alone determines student outcomes, but rather that it is an important and often overlooked factor that works alongside existing efforts. Paying closer attention to how these environments are experienced, especially in the spaces students rely on most, can help institutions create conditions that better support connection and persistence. In this way, campus spaces become one more piece of the broader student success framework, rather than a separate or secondary concern.

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Appendix A: Survey Materials

Los Rios Campus Spaces and Student Experience Survey

Start of Block: Informed Consent Form

Q1

INFORMED CONSENT FORM

Building the Community Back into Community Colleges: Research on How Physical Infrastructure Attributes to Student Outcomes **This survey asks about your experience with campus spaces (such as study areas, student centers, outdoor spaces, and services) and how connected you feel to your college.** My name is Jaskirat Kaur, and I am a graduate student at California State University, Sacramento, Master of Public Policy and Administration. You are invited to participate in a research study about students' experiences on campus. This study looks at how the physical campus environment relates to students' sense of belonging and their decision to stay enrolled. The goal is to better understand how colleges can create spaces that support student success. If you volunteer, you will be asked to complete a short online survey about your experiences on campus. The survey will take about 5–7 minutes to complete. If you agree to participate, you can stop at any time. This study may expose you to minor risks, but they are not expected to be any greater than the risks you experience in daily life. There are no direct benefits to you for participating in this study. However, your responses may help colleges better understand how students experience campus and how the campus environment relates to belonging and staying enrolled. This information may help guide future improvements to campus spaces and student support. I will publish or present the results from this study. These results will not be used in any future research beyond this study. You will not be identified in my results. I will protect your identity by not collecting any personally identifying information and only reporting results in the aggregate. Protection of participant anonymity and confidentiality will be maintained throughout the study. The researcher will not disclose any information about participants and will report data only in aggregate form. All survey data will be securely stored and will be destroyed 7 years after the conclusion of the study. If you have any questions about the research, please contact me at (kaurj@flc.losrios.edu) or (Shane Nordyke, shane.nordyke@csus.edu). If you have any questions about participant rights in research, please call the Office of Research, Innovation, and Economic Development, California State University, Sacramento, (916) 278-5674, or email irb@csus.edu. By clicking "I agree" and continuing to the survey, you indicate your voluntary consent to participate in this study.

- ○ I agree (1)
- ○ I do not want to participate (2)

Skip To: End of Survey If INFORMED CONSENT FORM Building the Community Back into Community Colleges: Research on How Physic... = I do not want to participate

End of Block: Informed Consent Form

Start of Block: Student Background

Q2 Which Los Rios College do you consider your primary (home) campus this term?

- American River College (ARC) (1)
- Cosumnes River College (CRC) (2)
- Folsom Lake College (FLC) (3)
- Sacramento City College (SCC) (4)

Q3 What is your enrollment status this term?

- Full- Time (12+ units) (1)
- Part- time (under 12 units) (2)

Q4 What is your primary class format this term?

- Fully in Person (1)
- Hybrid (Partially online) (2)
- Fully Online (Asynchronous or Synchronous) (3)

End of Block: Student Background

Start of Block: Campus Space Usage

Q5 In a typical week, how many days are you physically on campus?

- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)

Q6 About how much time do you spend on campus, outside of class, each week?

- None (1)
- Less than 1 hour (2)
- 1-2 hours (3)
- 3-5 hours (4)
- 6-10 hours (5)
- 10+ hours (6)

Q7 Which campus spaces do you use outside of class?

_____

Q8 Which, if any of these spaces, do you use?

- [ ] Library (1)
- [ ] Study room/ quiet study spaces (2)
- [ ] Open lounge seating (3)
- [ ] Student center (4)
- [ ] Cafeteria/ food area (5)
- [ ] Outside seating/ courtyard/lawn (6)
- [ ] Tutoring center (7)
- [ ] Counseling office (8)
- [ ] Computer lab (9)
- [ ] Basic needs center (10)
- [ ] Makerspace/ STEM lab (11)
- [ ] Cultural/ identity-based center (12)
- [ ] I usually leave campus right after class (13)
- [ ] Other (14) _____

Q9 Share your usage of the following spaces:

	Never (1)	1–2 times this semester (2)	About once per month (3)	2–3 times per month (4)	About once per week (5)	Multiple times per week (6)
Library (1)	○	○	○	○	○	○
Study rooms/ quiet study spaces (2)	○	○	○	○	○	○
Open lounge seating (3)	○	○	○	○	○	○
Student Center (4)	○	○	○	○	○	○
Cafeteria/ food area (5)	○	○	○	○	○	○
Outdoor seating/ courtyard / lawn (6)	○	○	○	○	○	○
Tutoring center (7)	○	○	○	○	○	○
Counseling office (8)	○	○	○	○	○	○
Basic needs center (9)	○	○	○	○	○	○
Computer lab (10)	○	○	○	○	○	○
Makerspace/ STEM lab (11)	○	○	○	○	○	○
Cultural/ Identity-based center (12)	○	○	○	○	○	○

End of Block: Campus Space Usage

Start of Block: Campus Environment and Student Experience

Q10 When you think about being on campus overall, how does it make you feel?

_____

_____

Q11 What is one campus space that makes you feel comfortable or supported? Please explain why.

_____

_____

Q12 How do indoor campus spaces (such as classrooms, study areas, or student services) make you feel?

_____

Q13 How do outdoor campus spaces (such as courtyards, lawns, or walkways) make you feel?

_____

_____

Q14 What is one campus space that could be improved to better support students? What would you change?

_____

Q15 Please indicate the extent to which you agree with the following statements.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Campus spaces feel welcoming and inclusive (1)	○	○	○	○	○
I feel safe on campus (2)	○	○	○	○	○
The physical layout of the campus supports how I move between classes, study, and services. (3)	○	○	○	○	○
I feel like I belong at this college (4)	○	○	○	○	○
I feel connected to other students here (5)	○	○	○	○	○
I feel supported by my college (6)	○	○	○	○	○
Campus spaces are well-designed for students (7)	○	○	○	○	○
Campus spaces are well-maintained (8)	○	○	○	○	○
The physical spaces on campus affect how connected I feel to this college. (9)	○	○	○	○	○

Feeling connected to campus makes it more likely I will stay enrolled. (10)	○	○	○	○	○
I feel confident I can reach my educational goals (11)	○	○	○	○	○

End of Block: Campus Environment and Student Experience

Start of Block: Demographics

Q16 How do you describe yourself?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer to self-describe (4) _____
- ○ Prefer not to say (5)

Q17 How would you describe your race/ethnicity?

- ○ African American/ Black (1)
- ○ Asian (2)
- ○ Filipino (11)
- ○ Hispanic/ Latino (3)
- ○ Native American (4)
- ○ Pacific Islander (5)
- ○ Other non-White (12)
- ○ White (6)
- ○ Unknown (13)
- ○ Multi-race (8)
- ○ Prefer to Self- describe (9) _____
- ○ Prefer not to answer (10)

Q18 How old are you?

- ○ 18-20 (1)
- ○ 21-24 (2)
- ○ 25-29 (3)
- ○ 30-39 (4)
- ○ 40+ (5)

Q20 What is your current employment status?

- ○ Employed, full-time (1)
- ○ Employed, part-time (2)
- ○ Not employed (3)

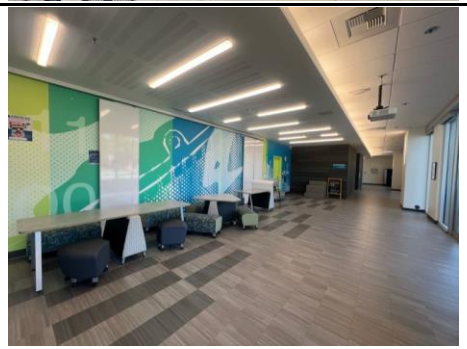
End of Block: Demographics

Appendix B: Campus Space Observation Guide, Images, and Scores

Image Upload	Los Rios Campus:	**Accessibility & Inclusivity** Assesses whether the space is physically and socially accessible to a wide range of students. (5PTS)	**Comfort &Welcoming Environment** Assesses the extent to which the space feels physically& emotionally inviting for students to enter and remain. (5PTS)	**Institutional Signaling** Assesses what the space communicates about upkeep (Max 5PTS)	**Nature & Environmental Quality** Assesses the presence of natural elements and environmental features that contribute to well-being. (Max 5PTS)	**Technology and Productivity Support** Assesses the availability and accessibility of resources that support academic work and productivity. (Max 5PTS)	**Communal Function (Social Capital)** Assesses the extent to which the space supports interaction, connection, and relationship-building among students. (Max 5PTS)	**Total**
	ARC	5	5	5	5	5	5	30
	ARC	5	3	4	0	5	0	17

	ARC	3	3	3	4	0	3	16
	ARC	4	3	3	4	0	4	18
	ARC	4	4	4	4	0	4	20

	ARC	4	4	5	3	4	5	25
	ARC	5	3	3	4	2	3.5	20.5
	ARC	4	3	3	4	0	3	17

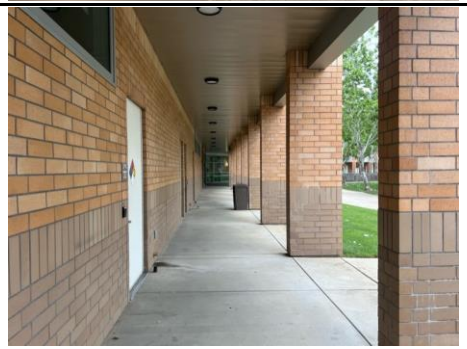
	ARC	5	5	5	5	0	5	25
	ARC	4	4	4	4	4	4	24
	ARC	3	2	2	3	0	3	13

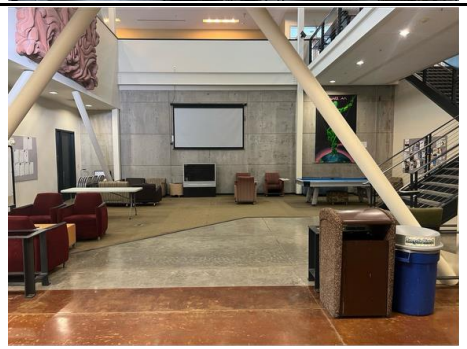
	ARC	4	3	2	2	0	3	14
	ARC	4	3	3	1	3	3	17
	ARC	0	0	1	0	0	0	1

	ARC	4	4	3	3	5	5	24
	FLC	4	3	4	4	0	4	19
	FLC	4	3	3	3	0	3	16

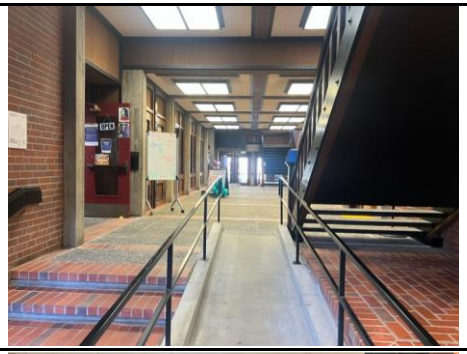
		FLC	5	5	5	0	5	5	25
		FLC	4	5	5	2	4	5	25
		FLC	5	5	5	5	5	5	30

	FLC	4	2	2	2	0	3	13
	FLC	4	2	2	2	0	0	10
	FLC	5	0	0	0	0	0	5

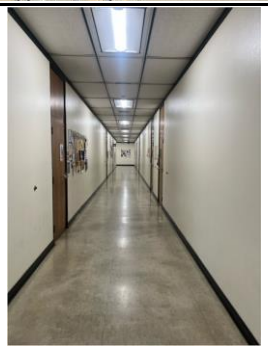
		FLC	4	4	5	0	4	4	21
		FLC	0	0	0	3	0	0	3
		FLC	5	4	3	4	2	4	22

		FLC	5	2	2	5	0	4	18
		FLC	5	5	3	0	4	5	22
		FLC	4	2	2	3	0	3	14

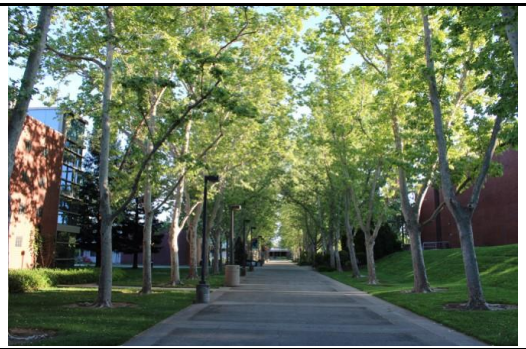
	FLC	3	5	3	0	5	5	21
	SCC	5	3	3	3	5	3	22
	SCC	5	3.5	3.5	4	5	5	26

		SCC	0	0	0	0	0	0	0
		SCC	3	0	0	0	4	4	11
		SCC	5	5	5	5	0	5	25

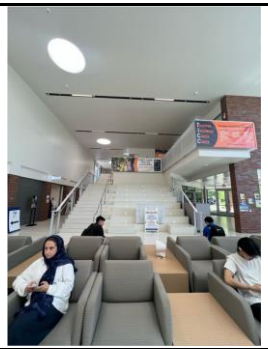
		SCC	5	5	5	5	0	5	25
		SCC	5	4	4	0	3	4	20
		SCC	5	5	5	3	5	5	28

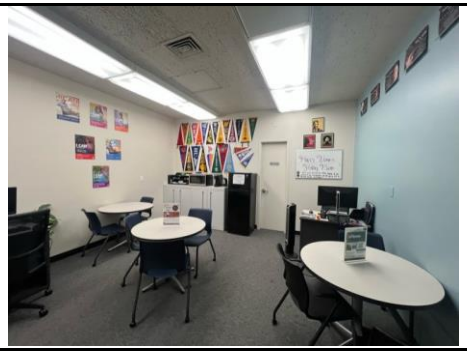
	SCC	4	3	3	3	3	4	20
	SCC	0	0	0	0	0	0	0
	SCC	4	2	2	2	4	2	16

	SCC	5	4	4	4	0	4	21
	SCC	5	5	5	5	0	5	25
	SCC	3	4	4	4	0	2	17

	CRC	5	5	5	5	0	5	25
	CRC	3	2	1	1	0	0	7
	CRC	0	0	0	4	0	0	4

	CRC	0	0	0	0	0	1	1
	CRC	0	2	2	3	0	3	10
	CRC	5	2	2	4	0	3	16

	CRC	3	4	4	3	4	5	23
	CRC	4	4	4	4	4	4	24
	CRC	3	2	2	2	2	2	13

	CRC	4	3	3	2	4	3	19
	CRC	4	4	4	3	4	4	23
	CRC	3	3.5	4	0	4	4	18.5

	CRC	4	3.5	3	3	5	4	22.5
	CRC	4	4	4	4	4	4	24
	CRC	4	4	4	4	4	4	24