



Finding a Place to Belong: Understanding the Role of Place in Developing Learner Identity Among Students Returning to In-person Learning

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Introduction

COVID 19 brought unprecedented global disruption to both K-12 and higher education with the decision at most schools in spring 2020 to discontinue in-person learning. By fall 2020, 67% of K-12 parents reported that their children's classes had moved to an online format (De Brey, 2021). In addition, hundreds of thousands of college students in the United States and abroad abruptly transitioned from in-person to online learning experiences, often with limited technical, technological, and contextual capacity to do so. (In spring 2020, over 10% of adults in the United States with children in the home reported not having adequate access to computers and internet for educational purposes.)

In the semesters ranging broadly from fall 2020 to fall 2021, universities sought to safely and effectively open back up their campuses to learners (Chronicle of Higher Education, 2020). In that effort, campuses across the country prioritized bringing back in-person first-time-in-college (FTIC) freshmen. Efforts often born from an institutional belief in and commitment to the value of interactions that are only achieved in such a context (Sabella, 2021). The reality, though, was that many of these students were entering campuses with low levels of social, emotional, and academic well-being due to extended periods of online learning in their final years of high school (Duckworth, et al., 2021). This reality, for some students, represented an unfamiliar learning environment to be negotiated by understanding their multiplying and evolving spaces as learners in college (e.g., Sequeira & Dacey, 2020).

A substantive body of research has sought to understand the role that "built space" places in the formal and informal learning opportunities for students. Building from a Strange and Banning's (2001) model for environmental design and Banning and Kaiser's (1974) campus ecology framework, this research paper describes the experiences of one group of freshman STEM students arriving on a college campus for the first time in fall 2021 after nearly a year and a half of online learning in high school. Specifically, the paper seeks to answer the research question: *To what extent and in what ways does physical space contribute to students' developed sense of belonging to the university community?*

This paper begins with a description of the conceptual frameworks guiding the study followed by a summary of relevant literature. It presents findings from longitudinal qualitative interviews with a group of first-year students followed by discussion, and implications for practice and for future research.

Conceptual Framework

Strange and Banning (2001) proposed a hierarchical model for the design and purpose of environments. Most important, they posited that effectively built environments provided a sense of safety and inclusion. From that foundation, space could also serve as a conduit for involvement (including participation, engagement, and role taking) and also serve as a basis for

cultivation of community. In specificity, Strange and Banning (2015) described four components that drive interaction between people and their environments: 1) physical, 2) human aggregate, 3) organizational, and 4) socially constructed. These components are interconnected and fluid. As Maxwell (2016) summarizes, “the interplay between those who use the space, how the space can be perceived and/or defined, the policies and protocols that guide its use, and the actual design and aesthetics create an environment that influences its use. Each component can contribute positively and/or negatively, which, in turn, impacts the person-environment congruence...” (p. 33). In fact, Shalka (2021) showed that specific campus spaces can take on very powerful unexpected meanings for students with past traumatic experiences, even serving as emotional triggers, showing that the student campus experience goes well beyond the people and policies of an institution. More broadly, Banning and Kaiser’s (1974) ecological perspective for campus design suggests that it is critical to “incorporate the influence of environments on persons and persons on environments” (p. 371). In consideration, a design process would consider the interdependent relationships among the macro level campus community, the micro level groups on campus, along with the individual level experiences. It is within these multilayered ecological frames, then, that this study situates.

Summary of Literature

Learning and the Built Environment. Research identifies that the form and function of physical space may have direct and indirect influence on student learning (e.g., Stave, 2020; Strange & Banning, 2015; Temple, 2009). In particular, “a campus environment that creates a high person-environment congruence tends to result in higher student retention...” (Molina, 2019, p. 12). Empirical studies have also sought to more specifically explore the ways in which the built environment has influence specifically on informal learning, a particularly important context in contemporary higher education (e.g., Berman, 2020; Deed & Alterator, 2017; Wu et al., 2021). For example, Gomez-Lanier (2015) sought to understand informal built environment preferences for online undergraduate and graduate students. Findings suggest that effective attention and distribution of resources toward adaptable physical space encourages learning. As another example, work by Wu et al. (2021) identified specific design characteristics perceived as useful by students when engaging in informal learning spaces, including: comfort; flexibility; functionality; spatial hierarchy (i.e., legibility, accessibility, and privacy); and openness. In sum, an amassing body of empirical work confirms that the built environment matters.

Campus Climate. A deep research base also documents that students’ college experiences are influenced, sometimes strongly, by the climate of the campus (e.g., Astin, 1993; Denison, 1996; Garvey et al., 2018; Gusa, 2010; Hurtado, Carter, & Kardina, 1998; Moran & Volkwein, 1992; Tinto, 1993; Victorino et al., 2022). As these and myriad other studies document, negative encounters have been associated (both directly and indirectly) with impacts on key success measures like grades, retention, and graduation rates where positive campus climate may have direct and/or mediating influences.

In connecting campus climate to this study, a subsection of campus climate literature has sought to specifically understand the role of behavior. As Von Bergen (2012) summarizes,

Students' social interactions on campus are the premise of the behavioral aspect of campus climate. These consist of overall interactions with people on campus, including faculty and staff, the number of these interactions that are with diverse peers, and the quality of students' relationships with their peers (Hurtado et al., 1998, 1999). Pascarella and Terenzini (2005) concluded that "the effects of [campus climate] may be more indirect than direct, influenced by more supportive faculty and peer relations and overall educational environment" (p. 438). (p. 32-33)

Built space as part of the educational environment, then, is a consideration worth understanding, particularly with respect to its influence on behavior. Related, this study considers the role that built space plays on sense of belonging (Ahn & Davis, 2019). Closely tied to campus climate in general and behavior in particular, research on belongingness identifies interactions with peers and valued involvement, among others, as especially influential (e.g., Hoffman et al., 2002; Strayhorn, 2018). In summary, the literature reinforces the ways in which space and experience intersect to influence key student outcomes. This same work also reinforces that more needs to be understood as well, thus underscoring the relevance of the current work.

Current Study

Institution Description. The University of Houston (UH) has one of the most ethnically diverse STEM student bodies in the country and has been designated a Hispanic Serving Institution (HSI) by the U.S. Department of Education. Within the fall 2019 cohort of first-time-in-college (FTIC) freshman, 50% of the 5,682 students identified as either African American, Hispanic, or multiracial (44% for STEM). The UH student body also reflects diversity in student economic status. In the fall of 2019, 45% of FTIC students were Pell-eligible. Within STEM, 37% of Engineering, 39% of NSM, and 52% of Technology students were Pell-eligible. Approximately 94% of UH FTIC undergraduate students receive financial aid from federal and state sources with an average aid amount of \$7,061 per year. The average annual cost of attendance (COA) at UH (tuition + fees) for FTIC in-state students is \$9,457. The University of Houston was recently ranked by the Princeton Review as one of the top 50 Best Value Public Colleges in 2021. The overall 4-yr *retention* rate at UH is 66% (Engineering = 68%, NSM = 70%, Technology = 61%) while the overall 6-yr *graduation* rate is 61% (Engineering = 63%, NSM = 64%, Technology = 48%).

Participants. All participants in this study were selected scholars in the Endeavour S-STEM Program at the University of Houston. During each summer of the program, all first-time-in-college students who met the program criteria were invited to apply to the program. The program criteria were as follows: 1) FTIC freshman majoring in STEM, 2) top 10% of high school class, 3) Pell eligible, and 4) minimum SAT math score of 580 or ACT math score of 25. Twenty students each summer were selected to begin the program in the following fall based on the program criteria as well as on answers to essay questions submitted through a program application. Although it was not a requirement for acceptance, almost all participants were also first-generation students (neither parent had earned a college degree).

The Endeavour S-STEM Program was designed specifically to increase the engagement levels and thereby retention and graduation rates of low-income STEM students by creating a class cohort of entering freshmen and providing them with financial support, technical project opportunities, career guidance, outreach activities, and research opportunities. The program is funded through a grant provided by the National Science Foundation (NSF Award ID 1742579). Through that grant, each scholar receives \$2,000 of financial support every long semester during their first two years. As a requirement of the program, all participants enroll in a one-hour course during each of their first four semesters (technical courses in semesters 1 and 2, and research courses in semesters 3 and 4). In those courses they participate as a cohort in intentionally designed curricular and co-curricular activities aimed at supporting their academic journey toward successful completion of a STEM degree.

Data. Data from this study were collected as part of a larger multi-method research project seeking to understand the impacts of the program described above. Researchers hosted monthly semi-structured focus groups undertaken during the fall 2021 academic semester with program students in their first semester. This group of students had just entered college after spending their last year of high school receiving instruction in an online format. The focus group sessions for this study lasted 40 to 50 minutes and focused on a variety of topics related to their first-year experience, including *sense of belonging*. Because of the nature of the focus groups, conversations were not recorded and neither the instructors nor the program peer mentors were present while the researcher led the sessions. Detailed notes were taken by the researcher and, to the greatest extent possible, included direct quotes from participants as they responded.

Analytical Approach. As an overarching description, this study applied a multi-stage coding strategy. In particular, this analytical process used to identify relevant patterns (Bloor, Frankland, Thomas, & Robson, 2001; Hesse-Biber & Leavy, 2008; Patton, 2002) provided a systematic way of understanding commonalities in perspectives.

Positionality. The authors of this research paper are also faculty at the institution where the study took place. This context gives them nuanced understanding of the ways in which space and experience are described but may also unintentionally introduce a skewed lens. Cathy Horn is a social science researcher whose work considers the equity implications on student success outcomes of a variety of institution-level interventions. While she does not have a STEM background, much of her work has been focused on STEM-related efforts. Diana de la Rosa-Pohl is a STEM faculty member who directs the Endeavour S-STEM Program at UH, teaches the first-year courses in which these data were collected, and is the principal investigator on the grant that funds the program. She was not, however, involved in the data collection for this study.

Findings

Three themes emerged in analyses when seeking to understand students' perceptions of the roles of space in cultivation of sense of belonging: 1) Space as a Resource, 2) Different Spaces for Different Purposes but with Same End in Site, and 3) Belonging in Space. Each is discussed in turn.

Space as a Resource. In the initial focus group, participants were asked the general questions about what useful resources they have encountered as part of their early life on campus. The importance of built environment presented itself in both primary and secondary forms. To the former, for example, multiple students identified the library as a key resource. When probed for more specific detail about why or the ways in which the library was providing useful resources, participants almost exclusively described the physical environment as most helpful as opposed to the available services. Small study rooms, large open spaces for group discussions, and extended hours of access to the building were all viewed as important supports for their success. Such distinction is especially interesting given that the library also houses important equipment, computer labs, printing, scanning and other services. Noticeably missing as a major point of discussion was access to the actual library information, i.e. the intended purpose of the building. Rather, the library was a built environment where human resources (e.g., peers, study groups, friends) could interact and engage in informal learning.

In representing the ways in which space presented as a secondary resource, several students talked about specific workshops or centers and, in that identification, intentionally identified the located space as part of the valuing description. For example, one respondent discussed the importance early in the semester of the Engineering Career Center on the 3rd floor of a primary building in the College. Her description comingled the utility of the people *and* the proximal nature of the space. The instructor for the Endeavour class was able to direct students to career assistance in the space *directly* above the classroom, making the center itself (i.e., the people of the career center) feel more accessible to them and part of their professional network. In fact, the value of the proximity of the career center worked both ways. The staff of the career center were more likely to be able to schedule in-class workshops even during busy periods due to the fact that they could simply walk downstairs to the classroom, give a one-hour workshop, and quickly get back to their desks. Consequently, this increased engagement with the career center personnel paid off in tangible ways such as professional contacts, job interviews and at least one student securing a summer internship in their first college semester.

Different Spaces, Different Purposes, Same End Goal. As participants journeyed further through the semester, their identification of important resources expanded and often centered on space. Students continued to amplify the importance of space as part of their learning strategies, again highlighting the library as an important gathering space for work to be successfully undertaken outside of class. In addition, participants also expanded their articulation of important resources in two ways: 1) toward the informal space as a learning environment, and 2) in support of the whole self. Related to the theme of informal space as learning space, students described the value of the student center, dining facilities, and outside spaces (e.g., tables outside of one of the buildings) for opportunities to study (alone and with others).

Participants also began, over the course of the semester, to describe the importance of built space that facilitated important broader contributions to their student success. For example, multiple students described the student wellness center as a critical place to “clear your head” or “blow off steam” during stressful academic cycles. People began to offer an increasingly nuanced description of spaces that had previously been helpful but were only “academic” in nature. For example, for some the library had become an important *social* outlet as well as an academic one.

Similarly, participants began to identify the student center as a centering physical location for friends.

Belonging in Space. By the end of the semester, participants in the study articulated a nuanced relationship with built space that identified its role in cultivating sense of belonging. Participants described with detail location-based study groups of which they were a part that were important to them both academically and socially. One student told the story of his experiences playing basketball at the wellness center. What began at the beginning of the fall as one-on-one games became two-on-two and eventually evolved into full-court. The physical space created community, or, as he described, a “family vibe” that he deeply appreciated. Another student shared similar sentiment recounting the people resources she developed as a result of recurring participation in the student section (the area in a stadium or arena reserved exclusively for students) of an athletic event. Consistently, participants’ descriptions blurred boundaries between curricular and co-curricular activities, the spaces that housed them, and the value that both played in cultivating a sense of belonging.

Discussion

Findings from the study suggest that physical space (e.g., the library and other specific locations on campus) played a disproportionate role in creating a sense of belonging for students compared to that of the people on campus. In line with Strange and Banning (2001), the students’ understanding of the built environment was grounded in a recognition of spaces that created safety and inclusion (e.g., the library) and evolved to one that recognized space as a conduit for involvement (e.g., the student center, the wellness center) and that served as basis for community building.

Similarly, findings reinforce Wu et al. (2021) in their identification of flexibility, functionality, and openness as particular high-value conditions present in meaningful space. Those same conditions also align with Hoffman et al. (2002) and others who recognize the function of space in facilitating meaningful interactions with peers and valued involvement. Taken together, the results of this project add important nuance to the sense of belonging and identity development literature by expanding our understanding of the ways place, context, and prior experiences may uniquely intersect to ultimately influence belonging and identity in college.

Implications for Practice

The findings of this study have several implications for practice. These data highlight the importance of considering students’ emotional needs as well as academic needs in the design of school environments. This is something that is often overlooked, especially at the smaller scales within departments or small programs. As suggested in Quaye, Harper, and Pendakur (2019), actively including students in space design adds likelihood that the outcomes will be maximally beneficial to their sense of belonging and ultimately to their success. Returning to Banning and Kaiser (1974), those authors offer a seven-stage design process (Figure 1) which remains relevant and shows a foundational example of how this process might usefully manifest.



Figure 1: Design Process

These findings also suggest that intentional introduction and reintroduction to the full suite of spaces on campus is a useful undertaking when orienting first-year students during their first semester.

Implications for Future Research

Building on the findings of this study, two different clusters of new research might usefully be pursued. First, additional qualitative research might explore case studies of students to generate increasingly detailed understanding of the ways in which interaction with space matters. Quantitative analyses at scale might also provide important information about meaningful space utilization and optimization of built environments in support of students.

Limitations

The findings of this study are constrained by several limitations. First, while meaningful in its contribution, the study's design does not allow for broad generalization. Related, participants in this study encountered multiple conditions beyond the programmatic intervention of which they were all a part which may have had influence on their responses. To the extent that context was not shared as part of the focus groups, the study does not completely disentangle the specific role that intersecting conditions may have had. Finally, additional space usage and sense of belonging indicators were not included in this study. Said differently, the available data are rich but constrained.

Conclusion

While exploratory in nature, this study offers important preliminary insight into the role that physical place plays in the holistic learning experiences of students. As higher education as an industry continues to understand and evolve its efforts to ensure student success, these findings suggest that built environments remain important. But they also emphasize that there is much creative potential for reconceptualization of how in-person opportunities might be developed with increasing intentionality and in recognition that in-class and out-of-class conditions are important and intersecting contributors.

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