

Where to Hang Out: Interplay between School Building Characteristics, Authority Structures, and School Micro-Climates

Elke Altenburger
Benjamin R. Wellenreiter
Illinois State University

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Abstract

This comparative case study examines non-classroom spaces within two rural, midwestern high schools in the U.S., relying on a critical pedagogy of place perspective (Gruenewald, 2008). Participant descriptions focus on the interplay between school building characteristics and local authority structures. The juxtaposition of two demographically similar populations led by administrators of similar mindset, in different physical settings, highlights the influence of school building types in supporting or undermining place-based authority processes. The authors argue that purposeful alignment of social, physical, and organizational aspects can foster positive school climates. They recommend involving vulnerable students in the evaluation of environmental stressors in non-classroom spaces.

Keywords: secondary schools, school climate, school buildings, non-instructional spaces, adolescent socialization

Architecture regulates and influences people in purposeful, systematic ways (Shah & Kesan, 2007). Public school buildings are considered important tools for attainment of educational goals and social order (Markus, 1993). Investigations of school buildings traditionally evaluate classroom spaces for their effects on academic outcomes (Uline, Tschannen-Moran, & Wolsey, 2009). In contrast, non-classroom spaces are often studied for their relationships to social problems (Astor, Meyer, & Behre, 1999; Perkins, Perkins, & Craig, 2014; Vaillancourt et al., 2010; Woods, 2001). Non-classroom spaces are, however, deeply connected to student academic achievement, confidence, and perception of self-worth (Maxwell & Schlechtman, 2012; Uline et al., 2009). Studies of interactions between educational spaces and educational practices are both rare and important (Daniels, Stables, Tse, & Cox, 2019).

Viewing all school spaces as integrated and influencing academic, social, and emotional development, we explore the social learning environments of non-classroom spaces in two rural high schools in the midwestern United States. Specifically, we explore dynamic interactions between school building design, school practices manifested through each school's administrative philosophy regarding student autonomy, and the resultant yet evolving micro-climates created by school community members in the buildings informing them.

Connections between Buildings, Practices, Authority Structures, and Relationships

When working to expand understanding of the effects of the physical environment beyond basic variables for which consistent evidence has been established, the dynamic relationships between the environment and behaviors within increasingly need to be filtered through specific social contexts (Higgins, Hall, Wall, Woolner, & McCaughey, 2005). Important to the holistic evaluation of school environments are school practices. To avoid sending conflicting messages to students, educators need to implement practices that decrease dissonance among complex goals (Perry-Hazan & Birnhack, 2018). Clearly defined rules and expectations need to be effectively communicated (Galton, Hargreaves, Comber, Wall, & Pell, 1999) to better meld educators' and students' often divergent perspectives of the socio-spatial qualities of their buildings (Maxwell, 2000; Wellenreiter, 2021).

Those familiar with schools in the United States know that decisions about which spaces are accessible to students during breaks from class are typically the result of careful consideration by educators. Administrators also usually devote substantial effort to the regulation of school routines, student break experiences, and students' behaviors in these spaces. With often low expectations for student behavior (Hope, 2009), many U.S. school administrators address safety and discipline concerns with practices and policies such as the presence of police officers, video surveillance, and zero-tolerance policies (Arum & Ford, 2012; Nolan, 2009). Recognized are the ineffectiveness, unintended negative consequences, and biases of these practices and policies (Johnson, Boyden & Pittz, 2001; Okilwa & Robert, 2017; Skiba & Peterson, 1999). International comparisons of student behavior and school discipline practices suggest support of teachers' moral authority and students who perceive school rules as fair are more effective than greater sanctions and stricter

enforcement of rules (Arum & Ford, 2012; Gottfredson, Fink & Graham, 1994).

Authority structures are the foundations on which students are either granted or denied access to non-classroom spaces. Intertwined with pupils' autonomy are trust (Mullin, 2014) and trustful student–teacher relationships. Teacher perceptions of students' trustworthiness is connected to school organization and size (Van Maele & Van Houtte, 2011). Together, space, schedules, and routines influence the quality and frequency of communication between students and between students and administrators. This spatiotemporal order facilitates opportunities for communication and the extension of relationships between stakeholders (Gross, 2004; Higgins et al., 2005). Dynamic relationships between the building's social affordances (Gibson, 1979), authority structures, and school community members shape students' perceptions of non-classroom spaces.

School Climate

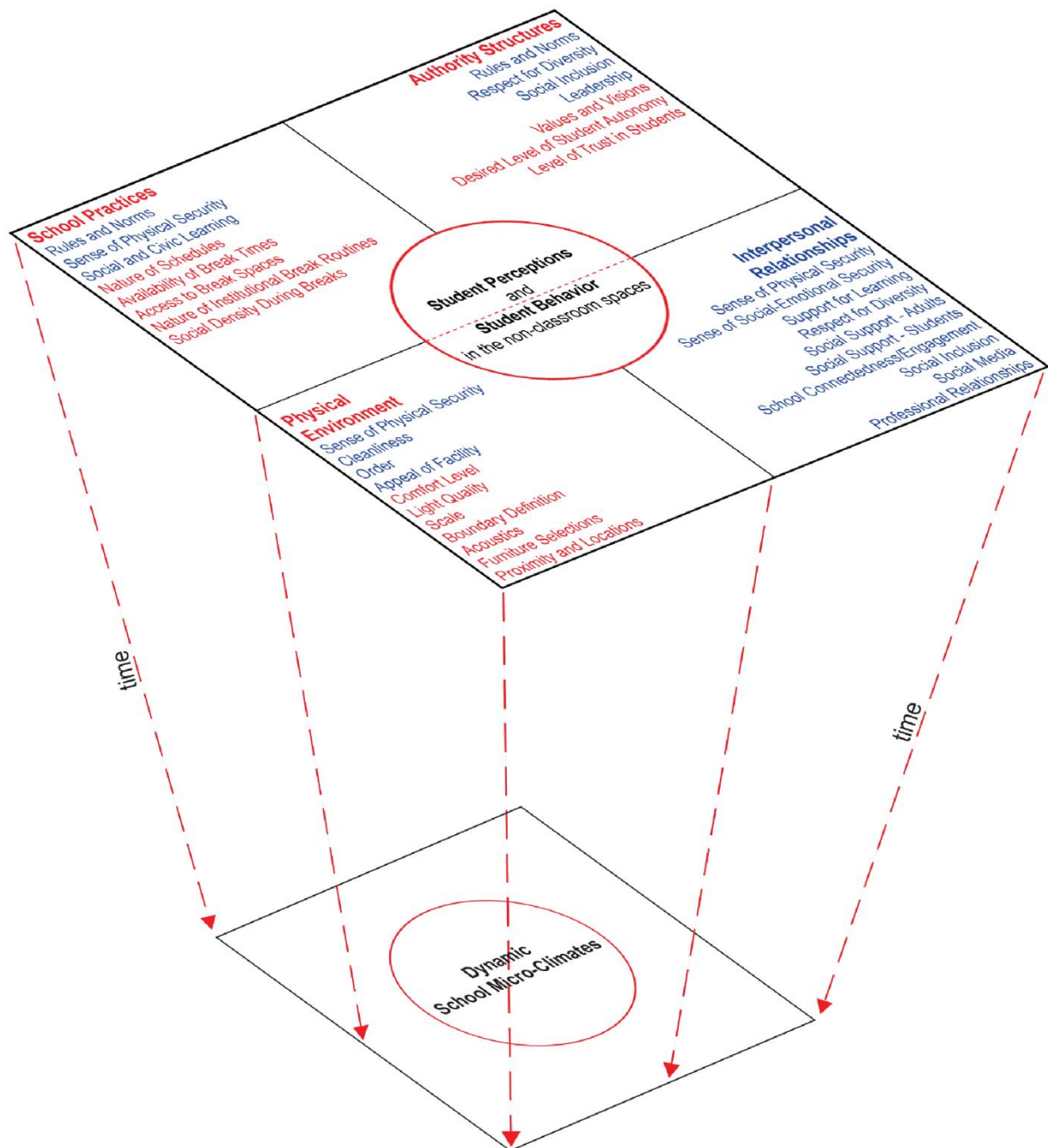
School climate as a concept integrates physical, social, and organizational aspects of school environments to holistically understand a school's quality (Davidovitch & Casakin, 2015; Gislason, 2009; Voight & Nation, 2016). The National School Climate Center (NSCC, 2020) measures 14 subcategories of school community members' perceptions of their institution's climate. The primary categories are (1) safety, (2) teaching and learning, (3) interpersonal relationships, (4) institutional environment, (5) social media, and (6) leadership and professional relationships of staff members. This study addresses the physical environment as a dimension of category 4, the institutional environment. Indicators for the contribution of "physical surroundings" are currently limited in the NSCC framework to cleanliness, order, appeal of the facilities, and adequate resources and materials (NSCC, 2020).

We argue that contributions of the social affordances (Gibson, 1979) of the physical environment to school climate are underestimated and underexplored. We suggest that a wider range of more concrete physical qualities contribute to school climates and their embedded micro-climates. Further, we believe each school space has its own micro-climate and that it is useful to explore contributions of spaces designed to serve and support social goals. Figure 1 illustrates our research findings and our contributions to an expanded understanding of the interacting aspects of dynamic school climates. We rearranged the NSCC's six institutional climate categories into four: (1) physical environment, (2) school practices that facilitate the social life within, (3) local authority structures, and (4) interpersonal relationships. Our revised model incorporates all 14 NSCC subcategories (presented in blue in Figure 1), repeating several that could be viewed through multiple lenses. All aspects of school climate established by NSCC—including all items in the interpersonal relationships category—are noted in blue; all new aspects that emerged from our data are noted in red.

Our expanded list of physical attributes noted in red in Figure 1 are part of the core findings of this research study. Additional aspects that influenced our participants' perceptions and behavior, belonging to the school practice and authority structures categories, are also noted in red in Figure 1. Finally, we put students' perceptions and behaviors in the non-classroom spaces at the center of our investigation

because students are most directly affected but least often consulted (Cook-Sather, 2002). Conveying the influence of history and experiences on these factors, we added a third dimension to this framework, recognizing their dynamic natures influenced by time.

Figure 1. Interacting aspects influencing student perceptions of dynamic school micro-climates



Exceptional Approaches to Authority

“[P]rogressive, humanistic conceptualizations of learners based on trust” have remained exceptions to the predominant U.S. school culture, which instead is typically driven by fear and adults’ need to control student behavior (Cook-Sather, 2002, p. 4). School building design, however, has changed dramatically over the last two decades. The conceptualization of school buildings as classifying devices (Markus, 1993) has evolved. Architects and researchers have found that changing learning environments influences school experiences (Daniels et al., 2019). Modern school design better supports learning activities, such as collaborative student work, with employment of informal spaces, while past generations of buildings encouraged strict teacher-centered pedagogies (Dudek, 2000; Mahony, Hextall & Richardson, 2011; Pearlman, 2010; Uduku, 2015; Walden, 2015; Woolner, Hall, Higgins, McCaughey, & Wall, 2007). Emphasized in newer designs are environmental comfort for users (Bernardi & Kowaltowski, 2006) and *support for*, not hinderance of, student social encounters.

In our ongoing conversations with them, educators in newer school buildings describe frustration at incongruence between their new physical environments and supervision practices to which they were accustomed. Educators report insufficient levels of control over student social activities during non-instructional times in newly expanded and openly connected non-classroom spaces. Essentially, school physical spaces were changing, but educators’ authority philosophies and practices were not.

To deepen understanding of interactions between architectural characteristics of school spaces, authority structures, and stakeholders, we explore student perspectives of non-classroom spaces in two rural high schools: one of a teacher-centric, institutional design and one of a student-centered, comfortable design.

Theoretical Framework

We explore these school environments through a lens of critical pedagogy of place (Gruenewald, 2003; 2008). Suggesting engagement in “needed conversation about the relationship between the places we call schools and the places where we live our lives” (Gruenewald, 2003, p. 623), we look inward on schools as places with important micro-environments where students live their lives (Gruenewald, 2003). Blending sociological, ideological, political, and ecological dimensions of spaces (Gruenewald, 2003), we explore these school spaces and processes as hegemonically, culturally, and ideologically infused. Both daily and over the long term, adolescents interacting in these spaces navigate multiple overt and tacit authority structures informed by and informing the physical spaces in which the students exist. This investigation explores interplay between these influences, focusing on messages received by participants engaged in these spaces. This work responds to Gruenewald’s (2003) focus on:

(a) revealing the relevance of place as a unit of cultural and ecological analysis, (b) demonstrating the many ways that places are pedagogical, and (c) supporting the claim that educational research, theory, and practice need to pay more attention to places (p. 621).

Exploration of student perceptions of spaces where they learn concepts of authority, economics, culture, and social interaction is a foundational step to encourage “teachers and students to re-inhabit their places, that is, to pursue the kind of social action that improves the social and ecological life of places, near and far, now and in the future” (Gruenewald, 2008, p. 314).

Method

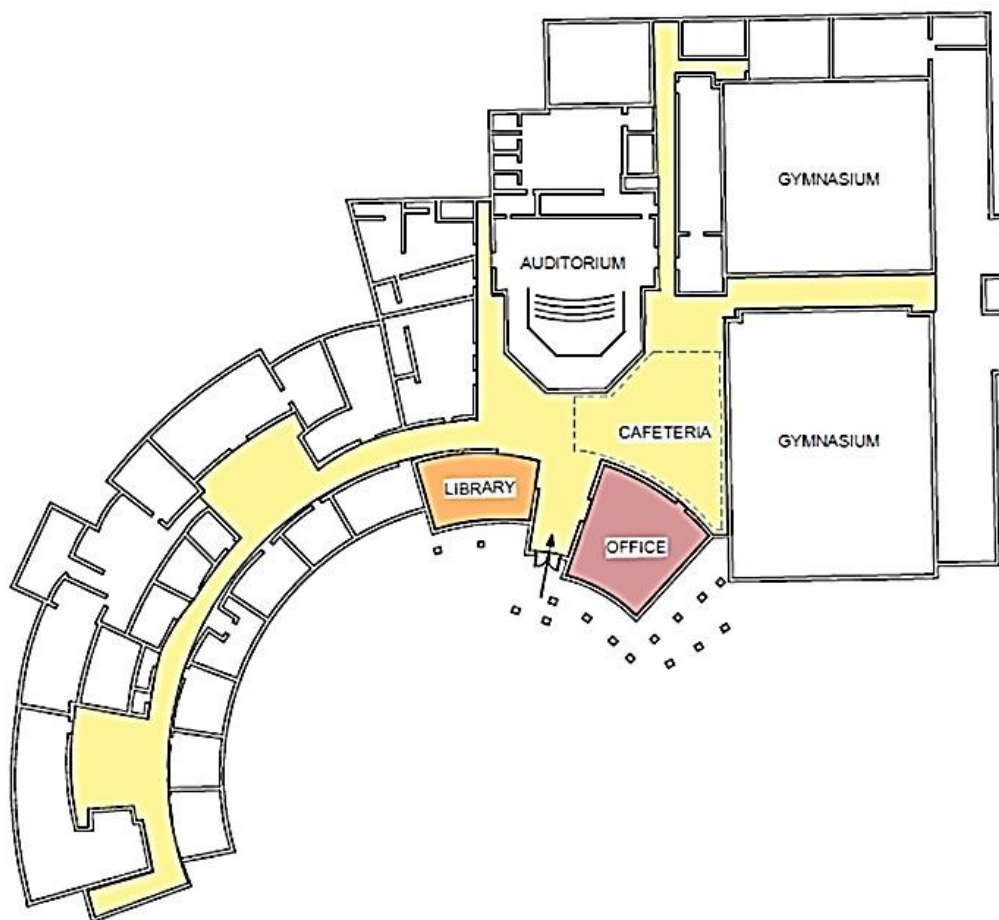
A review of literature regarding the effects of school design on their users’ responses uncovers a lack of qualitative studies and an associated “excessive fragmentation of the environmental complexity,” particularly in the evaluation of school interiors (Manca, Cerina, Tobia, Sacchi, & Fornara, 2020 p. 31). Manca and colleagues (2020) suggest holistic inquiry into the personal experience of school users. This investigation is a comparative ethnographic (Erickson, 1984; Green, Skukauskaite & Baker, 2011; Wolcott, 1997), multi-case study (Flyvbjerg, 2011; Stake, 1995; Yin, 2009) coming from a critical perspective (Anderson, 1989). We used Maxwell’s (2013) interactive model to design the research project.

Essential questions of our inquiry were:

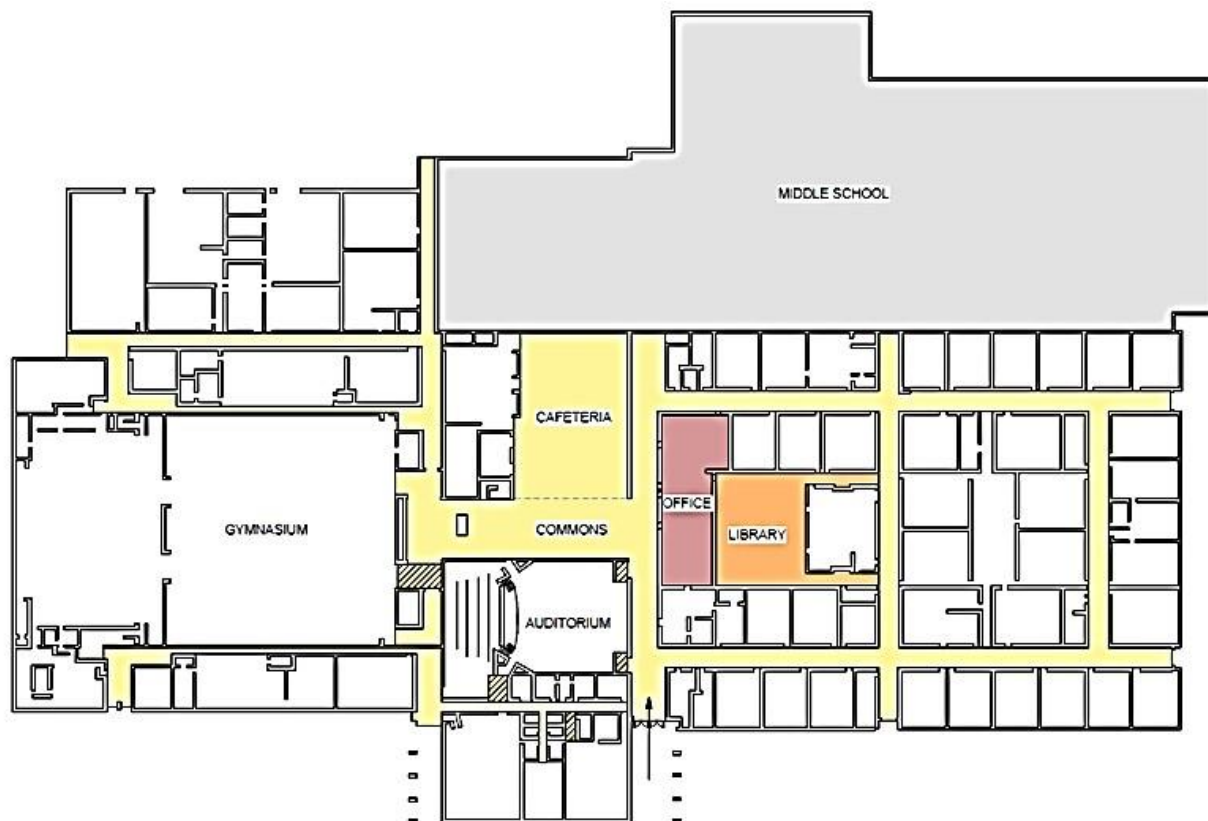
1. What happens regularly during the breaks at these two rural high schools?
2. What are the most popular student spaces during non-instructional times?
3. How are these spaces described and understood?
4. How do these spaces contribute to the local school climate?

Research Site Selection

We selected two demographically and socioeconomically similar rural schools in the midwestern United States: Country High School and Prairie High School (pseudonyms). Country High served a single small community. At the time of this study, it had 385 students and a per pupil expenditure of \$9,700. Ninety percent of the students at Country High were White, 4 percent Hispanic, 4 percent mixed-race, and 1 percent Asian. Thirty-seven percent of the student population belonged to households of low-income status. Country High School was completed in 2014 and had classrooms clustered around shared open zones intended to foster student collaboration (Figure 2).

Figure 2. Country High floor plan diagram

With a student population of 540, Prairie High was located at the center of a geographically large school district in the same state. Its per pupil expenditure was \$14,000. Ninety-three percent of the students at Prairie High were White, 3 percent Hispanic, 3 percent mixed-race, 1 percent Black, and 1 percent Asian. Thirty-three percent of the students belonged to households of low-income status. Prairie High occupied a building constructed in 1972, characterized by narrow, locker-lined circulation hallways that facilitated access to tight rows of classrooms on both sides (Figure 3).

Figure 3. Prairie High floor plan diagram**Data Collection**

Serving as ethnographers, two professors and one graduate student experienced both school environments and visited the sites in pairs to coordinate data collection proceedings. During three fall months, each site was observed on various days on a weekly basis for full school days by at least one collaborator. Observations of stakeholders' behaviors and conversations were conducted in non-classroom spaces such as lunchrooms, common areas, collaborative spaces, hallways, and libraries. Balancing the need to maintain a natural environment with student and educator curiosity, we answered any questions regarding our presence but did not actively seek out conversation with students. We observed interactions between students, focusing on how they used spaces available to them, paying special attention to social engagements between students and adults in charge of supervision. We wrote ethnographic field notes describing observed behavior as neutrally as possible, avoiding judgement and interpretation of interactions (Emerson, Fretz & Shaw, 1995). Place-based behavioral maps (Ng, 2016) were created both early and late in the data collection phase. During early site visits, we used floor plan excerpts to record regular locations of different peer groups such as football players, "band kids," and other groups, as well as times of arrival and locations of supervising adults. The maps helped us match student groups with their territories (Delaney, 2005). They also helped us understand which spaces were occupied first or were occupied by the largest groups of students.

During the second half of the school year, we conducted semi-structured individual interviews. When these started, student participants also used floor plan excerpts to mark spaces and furniture arrangements in places they used to meet friends or considered favorite places. We also collected documents designed to inform school routines and regulate student behavior, such as student handbooks and bell schedules. The schedules illustrated the level of complexity of both schools' regular routines and how much time students had been afforded for social interaction. The handbooks were used to compare the public transcript (Scott, 1990) of school behavioral guidelines with the school disciplinary culture described by participants and observed by the researchers.

Participant Selection

Employing a stratified purposeful participant selection approach (Palinkas et al., 2015; Sandelowski, 2000), we sought names of prospective participants through school counselors. As caring adults focusing on the emotional and social well-being of students, counselors have unique insights into both social and authority structures of their school communities. We sought students who reflected relative cross-sections of genders, diverse backgrounds, diverse socio-economic and peer and social groups, and extracurricular interests. After introductory informational meetings, five students at Prairie High and seven students at Country High participated in interviews. Principals, counselors, and librarians from both schools represented adult perspectives of social processes in the non-instructional spaces. Participants' names have been replaced with pseudonyms.

Data Analysis

After interview transcription, the two main investigators and an undergraduate research assistant—and former Country High student—engaged in collaborative open coding. We coded the transcripts, adjusting codes and their definitions as the first-round process unfolded (Saldoña, 2021). The second phase of coding was predominantly conducted by the primary investigator with peer debriefing (Lincoln & Guba, 1985) by the second investigator concerning the development of the overarching terms (Weston et al., 2001): locations, space, times, rules, supervision, students' hang-outs, digital social space, and place/culture. Long excerpts were double- and triple-coded, then followed up with investigation of strong code co-occurrences. The primary investigator wrote memos describing the nature of these code co-occurrences, then condensed them into major themes and compared them across cases. She then connected the contents of relevant documents serving as secondary data sources. During a final round of data analysis collected from student participants, we identified and highlighted NSCC's indicators of school climate to deepen understanding of their presence in the student perception data. The second investigator served as peer debriefer (Lincoln & Guba, 1985), again by reviewing two especially data-rich interviews, one belonging to each case. He confirmed proceedings, findings, and appropriateness of the summation and contextualization of student participants' perspectives as documented in Figure 4.

Figure 4 offers condensed primary data in the form of relevant brief excerpts from

all student interviews. Three of the four categories of the interacting aspects influencing student perceptions of dynamic school micro-climates— physical environment, school practices, and interpersonal relationships (see Figure 1)— serve as column headings. Authority structures, the fourth category, does not appear here because during the interviews, rather than explicitly talking about authority structures, the students described the nature of their relationships to adults; the rules, norms, and institutional practices governing their school experiences; and the interactions between adults. The abstract concept of authority structures emerged as relevant while analyzing prominent code co-occurrences. Code names that emerged during our iterative coding process appear bolded in the figure. NSCC's subcategories are coded in blue as in Figure 1, and codes referring to particular school locations are in black. All remaining code names referring to social or organizational aspects of the school environments appear in red. We share the essence of students' perspectives on the qualities of their physical school environments in the columns, "what works" and "what's wrong." Participants' recommendations for the improvement of socio-physical school environments are closely connected to their perceptions of what works and are therefore integrated into that column. The purpose of the red and blue text in these two columns is to emphasize strong consistencies among student perspectives. For example, social density and high noise levels are commonly perceived as problems, while spaces that offer soft furniture and are characterized as calm appear desirable. We also share school practices and their consequences for students' daily school experiences. In accordance with NSCC's conceptualization, in Figure 4 we divide interpersonal relationships by the school stakeholder types, specifically students and adults. We referenced our collected field notes, behavioral maps, and the content of informal conversations at the schools to describe the context for participants' understandings in the findings section and to inform code names.

Findings

The strongest themes identified related to the schools' social climates manifested in non-classroom spaces during non-instructional times. Themes related to the interplay of school architecture, educator approach to authority, and student use of space included: (a) Educators' approaches to authority structures informed students' perceptions of and behaviors in spaces available to them during their breaks. (b) When administrative philosophy regarding authority was a collective value of the adult stakeholders and well-aligned with the social affordances of the spaces, supportive effects of the physical environment on social school climate were strong. (c) When administrative philosophy regarding authority was not a collective value or well-aligned with the social affordances of the spaces, multifaceted, heterogenous school micro-climates existed during breaks.

Figure 4. Student participants' perspectives

Student Perspectives: Prairie High School				
Physical Environment		School Practices	Interpersonal Relationships	
Jack, Sophomore				
What Works	What's Wrong	Consequences	Students	Adults
<p>Library: quiet place to work with low social density.</p> <p>RECOMMENDATIONS: Gym: should be more accessible; maybe instead of just sitting in the commons, [it would be less crowded] if they were allowed to go to the gym</p>	<p>Cafeteria: I usually avoid the cafeteria at lunch—too loud and crowded, unsafe during club days</p> <p>Commons: loud and crazy; I feel like less bad things would happen if they're not just all together.</p> <p>Bathrooms: crowded, feels unsafe at times, [there are] boys that always are looking to mess with someone</p>	<p>No time before class to socialize</p> <p>Short transition times [mean I] try to get through the halls pretty quick because I don't want to be late and I never know if I'm going to get behind someone in the hallway; I speed walk</p> <p>Lunch routine + schedule: freshmen and sophomores eat together; I get in line as quickly as I can because it gets so full</p> <p>Club day/double lunch: Fights have broken down during lunch because it's a time where you are free to do whatever</p>	<p>By myself, no interaction, with peers before school</p> <p>Stand at their lockers, other students, with their friends in the morning, can be very rude and disrespectful</p> <p>Talk: quick little conversations during transition times</p> <p>Walk while listening to music</p> <p>Sense of physical security: instead of looking where they are going, they are looking at their phones; people getting pushed and shoved, being tripped, especially after school</p> <p>Social support-students: in response to academic stress</p>	<p>Monitoring in the mornings; questioning if close to fights</p> <p>Support for learning during study hall</p>
Sophie, Freshman				
What Works	What's Wrong	Consequences	Students	Adults
<p>Small, repurposed spaces: entry lobby to auditorium; they [adults] can see us from office; convenient location/ proximity</p> <p>Choir room: feels welcome, a place where I belong; that is where my home is</p> <p>Library: quiet, nice place to work, soft chairs</p> <p>RECOMMENDATIONS: Commons: provide soft chairs</p>	<p>At vending machines: there were a lot of people going over there and getting in trouble, we don't want to get in trouble for their stuff</p> <p>Commons: there is just floors and skinny, hard benches</p> <p>Hallways: crowded, easily overwhelming; there's some weird stuff going on in the hallway sometimes, the things that kids yell at each other</p>	<p>No time to get to my bus after school because my locker is pretty far away; I worry about that</p> <p>Study hall: homework, read, talk to some of my friends; as long as you are quiet they don't really care if you are on your phone</p> <p>Lunch routine + schedule, 3 or 4 teachers walking around supervising in the cafeteria, 2 in the commons; sometimes we come over there and we talk to them</p>	<p>Connections across grades: Talk about school with best friend [and] two intersecting groups, one of 4 one of 5</p> <p>Humor: dad jokes</p> <p>Memes</p> <p>Connectedness/engagement: choir [is] great; you are one of us and that's ok. I don't care how different you are, you're just part of the family. Volleyball ok; English, these people are definitely not my friends</p> <p>Support for learning: collaboration; everyone is good at something</p>	<p>Monitoring: they can see us in our nook, make sure everyone's behaving [and] not setting the school on fire</p> <p>Talk: to my teachers, miss my middle school teacher</p> <p>Social support-adults: Important adults- choir director is an important personal connection; extracurricular teachers are some of the most important people I have ever met; I could go to them with anything</p>

Renee, Senior				
What Works	What's Wrong	Consequences	Students	Adults
<p>Outdoor eating area: nice to be outside</p> <p>Small, repurposed spaces: auditorium entry area for some students; little backstage area for band kids, that's their group that's their place, quiet/calm Pit in the auditorium, my favorite spot to hang out soft chairs, no teachers</p> <p>Cafeteria: round tables [because] you just can't socialize with each other in a line</p> <p>Commons for outgoing students</p> <p>Library: new, whiteboards, welcoming, open all the time, low social density</p> <p>PE locker room: where your friends are</p> <p>RECOMMENDATIONS: Cafeteria: provide round tables with loose chairs</p>	<p>Outdoor eating area: fights</p> <p>Cafeteria: long linear tables, hard to see each other, talk and interact. Tables with fixed seats need to be expanded with loose chairs</p> <p>Commons: behind the trophy case [is a] rowdy space</p> <p>Hallways: Juniors hanging out create a sophomore traffic jam; crowded, uncomfortable</p>	<p>Outdoor lunch only with supervising adult, waiting, wasting lunch time</p> <p>Locker assignments organized by grade level create clogs of students from the same level</p> <p>Short transition times: [must] plan ahead to fit a bathroom break, be extremely organized to have enough time for a locker stop, otherwise you have to carry [your books]</p> <p>Study hall: freshman and sophomores have assigned classroom spaces, have to have passes to be in the hallways</p> <p>Club day/double lunch: a chance to meet friends that are less close</p> <p>Sense of physical security; Lunch routine + schedule: 4 teachers walking around feels safe</p> <p>After school adults walk around with walkie talkie</p>	<p>By myself—some students sit alone</p> <p>Sit at their lockers with two friends in the morning</p> <p>Connections across grades: stands and talks after lunch; hangs out with less-close friends on club days; meets different students in different spots in the hallways during transitions in direct connection to schedule classroom locations</p> <p>Games: hacky sack, rowdy boys—no need to hang with them</p> <p>Fights in outdoor lunch space</p>	<p>Monitoring: cafeteria, outdoor space, teachers at every corner in the hallway</p> <p>Rules + norms: make rules; librarian is strict about the no-feet-on-the-furniture rule</p>

Lizzie, Sophomore				
What Works	What's Wrong	Consequences	Students	Adults
<p>Small, repurposed spaces: low social density; unfortunately taken by other students</p> <p>Auditorium, associated with good memories, relaxing, place attachment</p> <p>Classroom with favorite teacher; quiet/calm, low social density, lower light levels</p> <p>Library, positive place</p> <p>RECOMMENDATIONS: Place to be alone, to do homework or listen to music. There isn't any space to get away from the crowds except for special classrooms</p>	<p>Cafeteria: crowded, cliquey no mingling</p> <p>Commons and adjacent areas: crowded, it's not like bad bad—there are no fights, but too open for introverts</p> <p>Hallways: crowded</p>	<p>Short transition times: to get from north end to south end of school, math to art; struggle; back packs are allowed which minimizes locker time</p> <p>Lunch routine + schedule: 4 or 5 teachers walking around in the cafeteria, 2 in the commons; they are usually a little bit more lenient, because its lunch</p> <p>Club day/double lunch: special privileges for good attendance and grades; free periods as result</p>	<p>By myself: introverted, don't like people that much</p> <p>Stand at their lockers: just a bunch of lockers and people gathered around those; they're just hanging out and having conversations and taking up space</p> <p>Sit in doorways: people get away from everyone else</p> <p>Talk with two friends during lunch, about school, drama; fights (maybe 1 or 2 every 6 months) with theater friends; with friends in the library</p> <p>Games: other students play hacky sack</p>	<p>Monitoring: enforcing school rules, no fights; they see most of what is going on or someone will go and get them; If something is going on I talk to a teacher; phone rules depend entirely on the teacher</p> <p>Support for learning during advisory</p> <p>Social support-adults: Important adults [are] like a friend/parental figure; librarian is cool</p>

Steven, Senior				
What Works	What's Wrong	Consequences	Students	Adults
<p>Outdoor eating area: nice to be outside</p> <p>Small, repurposed space: Little area outside the gym, little areas close to auditorium, for people who like seclusion in small group</p> <p>Cafeteria: less crowded in the mornings</p> <p>Library: quiet place to study; not a place for popular kids</p> <p>Weight room: where friends are</p> <p>RECOMMENDATIONS: Bathrooms + Weight room: equip with cameras [for] safety</p> <p>Gym: should be more accessible to serve the hacky sack community that used to be much larger</p>	<p>Hallways: crowded in the morning; everyone is just trying to squeeze through to get to their class</p> <p>Lockers and Bathrooms: vaping</p> <p>Bathrooms and Weight room: excluded from proficient supervision; people go over there to try to fight or mess around</p>	<p>Short transition times: not enough time to be social with friends you do not share a class with</p> <p>Study hall: freshman do bonding things during advisory; no structure for advising for older students, free range</p> <p>Lunch routine + schedule, 2 or 3 teachers in the cafeteria, 2 teachers in the commons</p> <p>Supervision practices: teachers are in charge of a section of the hallway</p>	<p>Connections across grades: Talk; students hang out in the hallways and in the cafeteria to talk to their friends or in the classrooms; hangs out with popular jocks and nerdier side geek; friendly morning conversations; friendly start to the day; positive vibes, after school I go talk to my friends about sports and drama</p> <p>Games: card games during advisory; hacky sack more important than eating; its social—just hanging out</p> <p>Fights: after people start yelling at each other</p> <p>Vaping: other students while in the cafeteria</p>	<p>Monitoring: coach supervising the weight rooms before and after school</p> <p>Sense of physical security: adults are there to break things up; de-escalation</p> <p>Rules + norms: rule enforcement; they don't see most of the stuff that happens; teachers in the hallway to keep an eye on things and avoid wandering students</p> <p>Social support-adults One important adult: contact with coach</p>

Student Perspectives: Country High School				
Physical Environment		School Practices		Interpersonal Relationships
Elizabeth, Freshman				
What Works	What's Wrong	Consequences	Students	Adults
<p>Outdoor eating area: low social density; smaller group; bright and nice</p> <p>Collaboration areas: soft chairs, quiet/calm, low social density; whiteboards good for creative brainstorming; my friends are walking into their math class and I'm already there; convenient location/ proximity</p> <p>Cafeteria: bright, spacious with many tables; seats are less closely spaced than in previous school; calming; likes to sit far away from the teachers</p>		<p>There is time: all my classes are close together; I have a lot of time to talk to other people during lunch</p> <p>I can move where I want to during lunch; the hallways are not so crowded so you can move</p> <p>Lunch routine + schedule: I can meet upper classmen during my school day</p> <p>Supervision routines: teachers are there but not so close you can freely talk</p>	<p>Connections across grades: Talk during lunch about school, summers, memories, homecoming; in collaboration area with 3 friends before school about school, dreams, weekends, teachers</p> <p>Walk with friends during transitions or alone</p> <p>Humor with my brother's friends</p>	<p>Support for learning before school</p> <p>Professional relationships in collaboration areas</p>

Mark, Senior				
What Works	What's Wrong	Consequences	Students	Adults
<p>Collaboration areas: soft chairs with awning, location for AP and online independent study students; becomes convenient; location/proximity to content-specific teachers</p> <p>Cafeteria, open, spacious, high ceilings; low social density</p> <p>Library: Adequate resources + materials, printer; quiet/calm</p>		<p>There is time during lunch oh yeah, definitely; most of the time everyone is done eating in 15 or 20 minutes and then gets to chill out for the last 20 minutes</p> <p>I can move [in the] cafeteria during lunch; I have room to move and breathe</p> <p>Short transition times: just enough to get to the next classroom unless its close</p> <p>Lunch routine + schedule: some of us had first lunch but this year we pretty much all had the same lunch; we got to get a table together</p>	<p>Talk: nobody wants to go sit in the classroom, so everybody (4-8 friends) comes into collaboration areas; [we talk about] last night, weekend, sports; hanging out with a friend is a good relief to rigorous classes; friends from AP classes and athletes; that's one of the best things about this school—not a big separation between the jocks and the nerds; third group of friends is less homogenous during lunch in cafeteria; small, tight- knit communities are good</p> <p>Games on phones</p> <p>Social media, social support: conversations about college decisions</p> <p>Social media: drama, sports- communication management</p> <p>Sense of social- emotional security: some scream and shout in the hallway but it's never a real concern</p>	<p>Sense of physical security: teacher/coach told us to be on the lookout for some strange- looking person; I've never felt worried to come to school</p> <p>Support for learning: in collaboration area, all the science teachers are there, and you can ask them questions concerning the online classes</p> <p>Social support- adults: Earned trust: we really have the freedom because at this point, we're trusted enough, the faculty here trust us</p>

Juna, Senior				
What Works	What's Wrong	Consequences	Students	Adults
<p>Outdoor eating area: speech privacy from student groups at other tables</p> <p>Collaboration areas</p> <p>Cafeteria: tables along spatial boundary rather than central locations</p> <p>Library: should be bigger; quiet/calm, yet social; convenient location/proximity</p> <p>RECOMMENDATIONS: Appeal of facility</p> <p>Colors should be more expressive— orange, yellow and red</p> <p>Display students' artwork; Decorate classrooms; students need to do this; add plants</p> <p>Classrooms owned and controlled by students; students stay there all day; rearrange the movable furniture regularly to get to know all students</p>	<p>Library: too small</p> <p>Appeal of facility: depressing colors</p>	<p>Short transition times: at home in Europe I have a lot more time to walk to class and talk to my friends. Here I just feel like I am always rushed.</p> <p>Lunch routine + schedule: my friends from cross country all have the same lunch as I do</p> <p>Rules + norms Library rules: not so very strict, we can have food, not much supervision</p>	<p>Talk: in cafeteria in the morning with boyfriend, best friend and her boyfriend; brief meeting to talk to friends in science collab; 8-12 people in different constellations —nerds and jocks; there is never a moment where we're not talking; trying to maximize the time in the hallways; important ongoing conversations.</p> <p>Walk each other to class in the morning</p> <p>Social support-students: Respect for diversity, expressive group (LGBTQ) who likes their speech privacy to discuss topics that are comfortable only with friends; me and my friends don't fit in very well; hard to be new</p> <p>Support for Learning: collaboration, we help each other with homework in the mornings in the cafeteria</p>	<p>Surveillance: through teachers at classroom door; they keep their eyes on you. I feel like I cannot be my expressive self</p> <p>Professional relationships in collaboration areas; that's better than when they just watch you</p>

Mai, Junior				
What Works	What's Wrong	Consequences	Students	Adults
<p>Collaboration areas: convenient location/proximity; high chairs, soft chairs; relaxed, low social density</p> <p>Cafeteria-Appeal of facility: it's pretty nice, table away from back entrance for thermal comfort</p> <p>Classroom of one important adult; whiteboards</p>		<p>There is time to play games after eating during the lunch break</p>	<p>Talk with best friend about mentor kids, English class</p> <p>Games: card games during lunch; stress reliever</p>	<p>Monitoring: [in] cafeteria, just so we're not doing anything wrong</p> <p>Social support-adults- One important adult; we talk to him</p>

Kristopher, Sophomore				
What Works	What's Wrong	Consequences	Students	Adults
<p>Outdoor eating area: smaller</p> <p>Collaboration areas: soft chairs, supports focused individual work</p> <p>Library: soft chairs, quiet/calm; it makes me relax and want to actually do my work</p> <p>RECOMMENDATIONS: Gym should be more accessible to practice basketball</p>	<p>Library: too small</p> <p>Gym: not accessible enough</p>	<p>There is time: small talk and the walk to class the school is kind of small</p> <p>Lunch routine + schedule: two of my friends I can have lunch with; the third is on a different schedule</p> <p>Rules + norms: rules are good; everything is just easier here; Library rules: nobody is there to tell me what to do; quiet goes without saying; No running in the hallways</p>	<p>By myself, shooting hoops in the morning</p> <p>Talk while sitting with my 4 friends in the cafeteria about sports; nice escape during lunch</p> <p>Walk to class while talking, listening to music</p> <p>Social support-students: with girlfriend problems, positive contact with the weird kids</p> <p>Social + civic learning: freshman play around, throw food, are noisy; we had to take them under our wing, now they sit with us</p> <p>Support for learning: be respectful and quiet in library when others are working</p> <p>Social media: to connect with friends, drama; moves fast across the community, everybody just talks</p> <p>Respect for diversity: it does not take much to feel different than everyone else here</p>	<p>Monitoring: in the hallways; not effective, you stop doing it while they are looking</p> <p>Sense of physical security: teachers prevented a potential fight</p> <p>Social support-adults: Earned trust—you got to be mature about it and get your stuff done; I like the teachers better here, they actually care; they want to help you</p> <p>Professional relationships: you see them talking to each other in collaboration areas</p>

Serina, Senior				
What Works	What's Wrong	Consequences	Students	Adults
<p>Collaboration areas: convenient location/proximity to classroom; opportunities for incidental social encounter</p> <p>Cafeteria: tables along spatial boundary; loose chairs to be able to adjust to a variety of group sizes; convenient table location and proximities, sight lines, speech privacy</p> <p>Library, soft chairs, quiet/ calm; low social density; casual/ Less formal; comfortable</p> <p>RECOMMENDATIONS: Gym: should be more accessible, boys like to use it</p> <p>Natural light to take pictures</p>	<p>Collaboration areas: no speech privacy</p> <p>Cafeteria: too cold</p> <p>Classrooms, too loud and crowded to do group work</p> <p>Library: too cold</p>	<p>There is time; I never feel rushed during lunch</p> <p>I can move to talk to my little brother during lunch, avoid sharing space with students I don't like</p> <p>Short transition times: you don't really have time to do anything else. So the extra time that we do have is really nice</p> <p>Study hall: assigned classrooms and then I can branch off; club meetings; homework in the library—40/60 learning and socializing; rearrange the furniture in collaboration area; you play on your phone and you do your homework; relaxing, chill; food; 50/50 learning and socializing; when studying or working needs to be done, we always do</p> <p>Social media: a lot of that happens when you are walking from class to class</p> <p>Rules + norms: Library rules—not so strict; sitting on the floor; self-check-out when the librarian is absent</p>	<p>Connections across grades: Talk about homework, love lives, extracurricular involvement, college applications, politics;</p> <p>Walk to class and text</p> <p>Dance in collaboration areas</p> <p>Humor</p> <p>Games: quizzes on BuzzFeed; trivia</p> <p>Read</p> <p>Social support-students: friend is moving to Brazil</p> <p>Support for learning: 40/60 learning and socializing; collaboration; study for tests in the morning in the library</p> <p>Social media: photos of friends using bathroom mirrors; posting on Snapchat, Instagram, record goofy stuff; if there is going to be a fight it is going to be on Snapchat; gossip, drama; that's like another way to be connected with people in the school without necessarily meeting up with them in these spaces; our phone is our own little collaboration area where we socialize as well as lip sync battle</p> <p>Incidental social encounter between teenagers in the collaboration zones</p> <p>Fights: it's always the boys; they just do it to get to go home</p>	<p>Earned trust: self-check-out in the library; extra time to collaborate outside of the classroom is really nice</p> <p>Incidental social encounter between adults and teenagers in collaboration areas</p>

Megan, Senior				
What Works	What's Wrong	Consequences	Students	Adults
<p>Collaboration areas: high table if soft chairs are already taken</p> <p>Cafeteria: large tables not fully occupied allow you to do homework there during lunch; very nice and spread out, relaxed, refreshing; quiet/calm; tables along spatial boundary; speech privacy</p> <p>Classroom of one important adult; whiteboards</p> <p>RECOMMENDATIONS: Make a variety of settings available: depends on the mood—sometimes I want to be in the middle, I want to be the cool kid. And other times I just kind of want to sit against the wall, chill for a bit. And then a lot of the times I go wherever is closest to the whiteboard.</p>	<p>Collaboration area: math and science; too many tables and chairs set up</p> <p>Cafeteria: inconvenient central location; distracting cross-traffic during lunch; tables close to trash</p> <p>We used to [get together] all around lockers; nobody touches them as much—why do you think that is?</p>	<p>I can move where I want to during lunch, so I can talk to all my friends</p> <p>Short transition times: not enough time to use the locker and deliver papers to clubs, therefore I carry my books around</p>	<p>Connections across grades: Talk when I run into friends in the hallway, during lunch, [about the] night before, plans for the future, club activities</p> <p>Games: card games occasionally before class and during lunch; texting, checking phones; lunch is probably one of my most relaxed times</p> <p>Dance: just dance on Wii after school</p> <p>Draw during free period</p> <p>Social + civic learning, Connectedness/engagement: its technically not for school, [but] we prepare girls for leadership roles in the local area. I have been part of it for 4 years</p> <p>Support for learning: 60/40 learning and socializing; if they are trying to learn and be quiet, I stay clear of the library, I don't even know their names, but we help each other</p> <p>Social media: small community; quickly everyone knows what is going on; no fights but I'll block you on Snapchat; some are very public persons others are private</p>	<p>Sense of physical security: Monitoring/surveillance during transitional times at their classroom doors to make sure no one gets in fights; instances where that has been helpful; I am being watched, [because] my sister misbehaved last year</p> <p>Support for learning: math teachers help with homework and with prep for tests in collaboration areas</p> <p>Social support-adults: Important adults: long term relationships with math and science teachers; they are so much fun; they keep things uplifting because high school is stressful; they try to give us a break after school, so we associate it in a positive way; I think the teachers really do try to keep us together</p>

Country High

Like many contemporary school buildings, Country High was designed to support student ownership of educational spaces. Hallways were wide and curved. Replacing lockers—traditional centers of casual interactions between students in high school buildings—were flexible, open, informal learning spaces referred to as “collaboration areas” (see Figure 2, above). These collaboration areas were located between clusters of classrooms as connected extensions of hallways, intended as informal gathering spaces instead of pure circulation spaces. Students at Country High experienced less-defined boundaries between the dichotomic “classrooms as learning spaces” and “non-classroom spaces as socialization spaces” typically experienced in older school buildings.

Displaying varied ceiling heights, the building was designed to control noise levels, promote student cooperation (Read, Sugawara & Brandt, 1999), and offer sufficient lighting (Earthman, 2004). To control noise, interiors of County High were materialized using acoustically absorptive materials instead of relying solely on acoustical ceiling tiles. Light fixtures created different brightness levels throughout these spaces.

With mostly carpeted floors and varied furniture arrangements, spaces at Country High were usually less densely occupied and noticeably quieter than spaces at Prairie High. Interiors characterized by high social density (Cash, Bradshaw & Leaf, 2015; Maxwell, 2003) and noise levels (Boman & Enmarker, 2004) have been found to generate environmental stress (Ahrentzen, Jue, Skorpanich, & Evans, 1984; Evans & Cohen, 1987; Gatersleben & Griffin, 2017). Students at Country High identified their favorite places by choosing the most comfortable furniture arrangements available in collaboration areas at locations most convenient to their peer groups. Most popular was furniture that was soft, comfortable, and residential in nature. Convenient locations were determined by evaluating relevant proximities to previous or upcoming classes of peer group members. If friends were coming from classrooms on opposite ends of the building, for example, they met in the cafeteria or the library, both located at the school’s center. Students sometimes chose to hang out in collaboration areas close to specific teachers’ classrooms so group members could easily seek additional academic support. We did not observe student competition for desirable spots, suggesting temporary ownership of locations by different peer groups (Delaney, 2005).

Collaboration areas were usually characterized by low social density. Rare exceptions to low social density occurred during occasional meetings of larger student clubs. The collaboration areas served as architectural public squares (Hertzberger, 2002) where one might regularly claim a favorite bench together with a coworker during lunch breaks without being upset or surprised if someone else used it at different times.

Mark, a senior, described what he understood as the core characteristic of the existing authority structure, responsible for granting his group autonomy to use non-classroom spaces freely for both academic and social activities:

...in the science collab, there's like seven or eight of us that hang out down there usually because everybody that's down there, it's all seniors.... So at that place, it's just basically if you have homework, you do your homework. If you don't, you just sit and hang out for 45 minutes and just do whatever; talk. Sometimes we play games on our phones.... I honestly, I think we really have the freedom because at this point, we're trusted enough, and the faculty here trust us enough that they don't really care where we're at.

Similarly, Serina, another senior, described why she valued her access to collaboration areas as quiet and spacious learning settings, nesting academic and social behaviors in a broad culture of trust, supported by educators:

[W]hen you're in your classroom, you're just confined to the people that are in that class with you. And in classes, sometimes [teachers] let us go out into the collaboration areas to work if we have a project or something. Usually, most people want to do that, and they'll branch off on their own. And that's nice just because you're more separated. So, it's easier to work in smaller groups. Whereas, like if you were stuck in the classroom, it's really loud and crowded and you can hear everybody and there's not room. So, it's nice to leave for more room.

Both Mark and Serina described spaces as less dichotomic classroom versus non-classroom spaces than traditional school structures imply. Supporting the melding of classroom and non-classroom space and times were the purposefully designed collaboration areas. Only with the support and trust of educators—gatekeepers of these spaces—did students have access to these areas. In each description, educators trusted students to utilize these spaces. Without this trust, students would not have had deep social access to these spaces except during short transition times.

Administrators at Country High relied on personal familiarity with students to inform their relationships. Rewarded with “earned freedom,” students meeting behavioral expectations used these spaces as architecturally intended. Students perceived as needing more structure remained in closer proximity to their teachers. In describing his approach to collaboration spaces, Principal Weiger emphasized the importance of trust and expectation of responsible, autonomous activity:

It's nice to be out there, but it's not a right. It's a privilege to be out there. So, utilize it properly. And that's what my point was to [students]. And I went down to the [collaboration space] in the next couple of days and they were fine. I haven't been down there this week, so I may check in. But for the most part they're seniors. They know what they're supposed to be doing. We've built enough of a relationship that they're going to, most of the time, do what you ask them to do.

Viewing access to these spaces by students as a privilege, Principal Weiger relied on a culture of trust and unwritten expectations for student behavior in these spaces. That “they know what they’re supposed to be doing” reflects norms balancing

academic focus, social interaction, and an informality of rules by which students abided. Without trust in student adherence to these broad norms and standards, Principal Weiger and his team would have restricted student access to these spaces. The architectural design of Country High, with its intent to support student collaboration and social interaction, was well aligned with an educator-influenced culture of trust.

Prairie High

Materialized with hard and acoustically reflective surfaces, hallways at Prairie High were narrow, designed solely for controlled circulation of students (Figure 3). Typical for schools created during the school building boom of the late 1960s and 1970s, narrow hallways discouraged social interactions (Osmond, 1957). In some schools, narrow hallways and dense layouts of classrooms enable enforcement of extreme disciplinary routines intended to shape desired student behavior (Altenburger, 2019). Students gathering in hallways created noisy “clogs,” hindering movement of students between classrooms. The “commons,” the large social center adjacent to the cafeteria lacked spatial variation, varying ceiling heights, or light levels, had no acoustically absorptive materials, and offered no furniture arrangements to support relaxed social interaction between students.

Built before diversified, flexible, and student-centered learning practices were commonplace, the design of Prairie High emphasized a dichotomic view of places throughout the school, designed as either teacher-centered classrooms or non-learning spaces for movement between classrooms. Interior spaces of the school building afforded little support for student socialization. The commons offered minimal bench seating along part of its periphery as the only spaces intended as locations for social interactions.

Students perceiving the commons environment as too loud or too crowded responded to the socio-spatial characteristics of their school building by repurposing small internal entry areas and discrete hallways in proximity to the spaces associated with their favorite extracurricular activities into group territories for their friends (Delaney, 2005). Sitting on the floor in doorways, congregating in small “hacky-sack” circles behind a freestanding trophy case, or standing on the periphery of the commons, students turned spaces designed as transitory locations into purposeful social places.

Renee described one of these socio-physical pockets. Belonging to a social group that had navigated the responsible use of a space not intentionally designed for student interaction, this space was largely free of adult supervision. These “band kids” had repurposed a small hallway connecting a music room and the school auditorium as break space:

[T]hat little backstage. Yeah. Those people, if they're not doing anything bad, they're just like, that's their group. They're band kids, so they, like, socialize in that area and that's just their place where they don't feel it's so loud. They're involved with each other. Most of them are dating each other. So, it is like, 'Oh, we're together.' It's not like they're vaping or anything.

Sophie, a freshman, described how her peer group interpreted the socio-physical environment of a conventional break space they had initially occupied as increasingly problematic and explained that they adjusted by choosing a less densely occupied and quieter space that better suited their needs:

Well, we used to sit by the vending machines, but there were a lot of people going over there and getting in trouble and we didn't want to get in trouble for stuff they're doing. So, then we moved to a quieter area and that's where we sat ever since.

Renee and Sophie described the adaptation of small spaces designed for transition rather than extended occupation as alternatives to large and undefined break spaces in a school characterized by a dichotomic distinction between academic and non-academic spaces. By dichotomizing spaces for learning and spaces for social interaction, the school building did not intentionally support group size variety or consider sensitivities to noise levels during non-instructional times. Importantly, leadership at Prairie High supported the retreat of students from the uncomfortable and noisy commons area to repurposed, smaller transition spaces during breaks.

Both student quotes illustrate what the principal described as his core expectation for students: that they "self-advocated" their time and behavior in the non-classroom spaces.

Leadership teams employing an authority structure emphasizing more control over student behavior would probably have inhibited students' repurposing of transitional nooks into social spaces. Principal Novak described the importance of connecting with students during lunch but respected their prevailing need and desire for peer interactions. He thought of lunch time as an opportunity for students to socialize, relatively free from adult intervention: "I like to move around and talk to students, but sometimes during lunch I feel like I'm intruding on their conversations. I might move around but I might also hang back and not say anything to them."

Supporting students' enactment of the administrative expectation of self-advocacy was an underlying assumption that students could be trusted to decide for themselves which spaces best suited their needs. At the same time, Principal Novak was aware of trust violations in repurposed transitional spaces located beyond the reach of casual supervision:

[T]he music hallway's always been a hallway where our music students congregate. They're great kids. There's some spaces around [the auditorium] where they like to hide. And so that's an area that is a little concerning to me. I always worry about the locker room areas because kids don't respect those areas very well. We have the most vandalism in those areas throughout the day. Those areas are of concern to me.

Principal Novak identified several spaces as worrisome because of their hidden nature and lack of supervision. Despite this, he neither considered global

restrictions to these spaces nor did he adjust school routines toward a more intrusive approach to supervision. Detected problematic behaviors were addressed individually by supervisors employing their understanding of what qualified as unacceptable student behavior. The principal reported that some teachers preferred more clearly defined institutional rules and behavioral expectations and, by extension, less autonomy for students in these spaces. As a result of interactions between the aspects of these socio-physical environments, small, repurposed transitional spaces were both important social spaces for students and potentially problematic locations. Student access to these spaces was practiced as a right in a physical environment offering few alternatives to the large, loud, and crowded break spaces. The architectural design of Prairie High's transitional spaces, not designed to be locations for extended social interaction and offering limited opportunities for casual supervision, was not well-aligned with administrative philosophies and practices of student self-advocacy and autonomy. The strongly defined boundaries of these spaces and their hidden nature hindered the casual and informal style of supervision, leaving the environment and their occupants occasionally unprotected from potential harm.

Discussion

At Country High, we found a close person-environment fit (Caplan & Van Harrison, 1993; Edwards, Cable, Williamson, Lambert, & Shipp, 2006) between the interacting aspects of the school environment that influenced students' perceptions of the social affordances (Gibson, 1979) of spaces designed and intended for their use during breaks and informal learning activities.

Administrator philosophies were shared with other adult stakeholders, allowing a common foundation for informing relationships between adults and students. Behavioral expectations were communicated clearly and consistently (Galton et al., 1999) but not enforced through overly controlled routines that would have suggested a lack of teacher-student trust (Mullin, 2014). Instead, the depth of trust and autonomy granted to students had been sustained over time in response to a student peer culture generally perceived as responsible. In this community, a positive school climate had grown, particularly for seniors, over the course of multiple school years. The nature of school practices, such as schedules and everyday routines governing the relationship between physical spaces and social behaviors within, were aligned with authority structures. They relied on noticeable levels of "earned trust" and rewarded students with "earned freedom." The characteristics of the school's architecture complemented specific social and organizational contexts endorsed by administrators. Architectural design and educator approaches to authority worked in tandem to support students' use of these spaces. Stakeholders at Country High embraced the design of collaborative spaces to expand opportunities for academic and social activities in these spaces.

At Prairie High, incongruence existed between the interacting physical and philosophical aspects of the school environment that influenced students' perceptions of the social affordances of traditionally designed break spaces. Because the principal's philosophy of self-advocacy was not universally shared by other adult stakeholders, it was weakened as a foundation for informing student-

teacher interactions. Wide-ranging behavioral expectations among adults led to uneven communication and, combined with often non-invasive and casual supervision, created a variety of school microclimates in these spaces. Extroverted students appeared to enjoy the cafeteria and commons spaces, but those more vulnerable to the negative effects on health and mood of chronic environmental noise outside their control (Belojevic, Slepcevic & Jakovljevic, 2001; Haines, Stansfeld, Job, Berglund, & Head, 2001; Stansfeld & Matheson, 2003), avoided them. Identifying less noisy and smaller spaces, groups of likeminded students repurposed small and clearly defined non-classroom spaces available to them. These spaces were quieter, easier to navigate socially, and better suited to group or individual needs.

Adults reported desires to support student autonomy during break times but worries about the hidden nature of small spaces used as alternatives to the commons and cafeteria. Adults' desires informed organizational approaches and individual supervision styles. There was, however, incongruence between the physical environment designed for control of behavior and the principal's philosophy and practice of student autonomy. Prairie High's building was not well-suited to either the envisioned relaxed student culture during breaks or to informal, extra-classroom learning activities. Educator approaches to authority structures led to opportunities for student access to unconventional spaces during their breaks, but the architectural design was not conducive to introverted or vulnerable students. Educators at Prairie High worried that expanded opportunities for student social encounters could lead to safety risks in this building characterized by designed, dichotomic academic/non-academic spaces.

Principals at each school emphasized awareness of students' needs to have substantial opportunities to socially connect. Prairie High and Country High were, however, two very different places (Cresswell, 2004). While we found similar goals for responsible student behavior and positive school climates, the spatial qualities and rules that informed each school's daily practices varied substantially. Each principal exhibited ambition beyond enforcement of rule-obedient student behavior. Instead, each tried to encourage the practice of responsible social decision-making processes to prepare students for life in less-controlled environments. Working with the affordances or within the confines of their physical environments, students responded to the philosophies of school administrators by adapting their own social processes.

Limitations

Several limitations to this study need to be pointed out. That both communities were demographically similar was a purposeful choice as we worked to juxtapose varied school building types with relatively similar populations. The school communities were homogeneously white, limiting generalizability to schools with populations with greater diversity. Although typically major factors in student socialization patterns, race, ethnicity, and culture (Joyner & Kao, 2000) were not described by participants as major considerations when interacting in these environments. While the findings of this study are thus not generalizable to every school community, the themes identified may serve as valuable starting points for

educators who wish to explore their non-academic environments and the social processes nested therein. Indeed, recommendations described below may be broadly implemented in schools of widely diverse student populations.

Second, while we selected the students participating in this study because of their diverse positioning within the school, students in their senior year in high school were overrepresented. This certainly affected our findings since educators commonly think of juniors and seniors as more mature than sophomores or freshmen. This second limitation does, however, allow the interesting and important dimension of time on student perceptions of their socio-physical school environments to be captured within these cases.

Finally, despite the small participant size, we argue the themes serve as starting points for consideration for readers in a wide variety of school settings.

Conclusion

This study took place during what may be considered a transitional phase in the interplay between school building characteristics and local authority structures. Most adult stakeholders in this study had developed their understanding of school authority structures informed by school buildings designed for control and within a national school culture emphasizing behavioral control of students perceived as untrustworthy. Educators were familiar with continuity between school designs promoting classroom/non-classroom dichotomies and authority structures characterized by surveillance and control. Recent trends in school building designs promoting collaboration and trust conflict with these established authority structures. During this study, we found educators of a new mindset concerning appropriate authority structures for their educational institutions. These educators thought of trust and space for freer social encounters between students as a way to prepare them for future, less controlled settings. The principals who inhabited different physical school environments either struggled against the rigid boundaries and loud and crowded spaces or enjoyed the support of a flexible yet spatially defined, comfortable, and spacious learning environment.

To grow stakeholder awareness of the barriers traditional school buildings create, and to deepen support for long-term investment in modernized school facilities, we suggest listening to those most directly affected but least often consulted at school (Cook-Sather, 2002): marginalized or vulnerable students (Flutter, 2006; Ghaziani, 2012). The students with whom we talked either appreciated or longed for non-classroom environments characterized by increased environmental comfort (Bernardi & Kowaltowski, 2006) and minimized environmental stressors as places to foster peer relationships. They wanted comfortable furniture arrangements to support different group sizes in less crowded and less noisy spaces. We suggest administrators start by adjusting school practices until they achieve break times and spaces characterized by lower social density. We further recommend identifying spaces to be reallocated as student-owned spaces during non-instructional times at strategic locations near adult-owned spaces or close to the schools' centers. This can be done, for example, by reconceptualizing school libraries as flexible learning centers where students are welcome, whether they read or not (Altenburger, 2021).

A concrete adjustment to physical school environments worth consideration is the removal of lockers from the hallways to afford more space during transition times. The result may be enhanced ability for students to congregate with friends without obstructing the necessary flow between classrooms. We recommend the addition of soft, sound-absorbing materials, such as carpets, to dampen the acoustics and minimize noise pollution in non-classroom spaces. Perhaps the most easily attainable adjustment we suggest is the addition of comfortable, diverse furniture for use in commons areas. Prior to renovations, educators may take time to consider the school climate they envision, the authority structures they have, their shared ideas about the appropriate level of student autonomy, and the current alignments between these aspects and their daily routines, for “If the good life does not begin at school, few children will believe that school is meant to help them reach the good life” (Bettelheim, 1979, p. 212). Though not every traditional school building will be replaced with one better suited for student interaction, the changes suggested may make non-academic spaces more conducive to positive student social interaction and improved microclimates, even in traditional school buildings.

Elke Altenburger, Ph.D., is an assistant professor for interior design at Illinois State University. She received her Ph.D. from the University of Missouri and has a degree as Graduate Engineer of Interior Architecture from the University of Applied Science in Düsseldorf, Germany. She practiced interior design in large architectural teams in Europe and the United States. Her portfolio includes mostly cultural buildings and projects of higher education. Her research interests revolve around student perspectives on informal learning environments in public secondary schools.

Benjamin Wellenreiter, Ed.D., is an assistant professor in the School of Teaching and Learning at Illinois State University. Ben teaches courses in middle-level social studies pedagogy, content-area literacy, middle-school teaching methods, and classroom management. His research interests include adolescent socialization in non-academic school environments and school authority structures. He has recent publications in *The Clearing House: A Journal of Educational Strategies, Issues, and Ideas* and *Middle School Journal*.

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