

Thought Question: Can school spaces be designed to support social and emotional learning?

Research Article: *Designing Schools to Support Socialization Processes of Students*

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Abstract

This study is about how the design of the built environment influences learning and the socialization process. The success of the socialization process, which refers to students assimilating societal values, norms, rules, and beliefs, hinges on the relationship between the built environment and its capacity to support learning. The design of learning spaces should “create positive conditions” to promote and support social emotional learning. To cultivate these skills, students need practice in both formal and informal socialization settings. Three aspects of the built environment which directly impact these learning opportunities include *space*, *crowding*, and *layout*. When these design elements are thoughtfully designed and integrated into the learning space, opportunities for bullying, disruptive behaviors, mental fatigue, and social withdrawal are decreased.

Keywords: Conditions for learning; Social and emotional skills; Built environment of schools; Socialization

Enjoy the article! **And remember...** the quality of learning and socialization process for students is determined by the environment in which learning happens.



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Designing schools to support socialization processes of students

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Abstract

This paper discusses the importance of understanding how the built environment of schools relates to the socialization processes of students. Schools can be affective systems that promote the social, emotional, and academic skills of children and youth, by serving as social microcosms of the broader society. It is widely recognized among education researchers and practitioners that social and emotional (non-cognitive) skills significantly influence student learning and performance. These skills include recognizing and managing emotions, developing caring and concern for others, establishing positive relationships, making responsible decisions, and handling challenging situations constructively. These skills serve as the foundation for a broad range of psychosocial, academic, and occupational outcomes. Subsequently, many primary and secondary schools in the U.S. are investing resources into interventions that focus on the promotion of these skills. From a socio-technical systems perspective, school interventions that aim to improve social and emotional outcomes are influenced by the social and emotional conditions for learning. There is evidence to suggest that the built environment of schools affects these social and emotional conditions and contributes to student socialization—factors that promote social and emotional skills—associated with academic learning and performance. However, research that examines the influence of the built environment of schools on student outcomes predominately focus on academic outcomes with little attention to the processes and outcomes from a social and emotional development perspective. An improved understanding of how attributes of the built environment of schools relate to socialization processes can further inform efforts to enhance the conditions for learning associated with both student learning and performance and social and emotional outcomes.

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Keywords: Conditions for learning; Social and emotional skills; Built environment of schools; Socialization; Socio-technical systems perspective; Affective systems

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1. Introduction

The social processes and outcomes of school systems have been a traditional focus of social science research on “school effects” [1, 2, 3]. Among the robust effects studied is school climate, which is denoted as characteristics of school culture, relationships, student and adult behaviors, and policies and procedures that contribute to the tone and attitudes of staff and students toward school [4]. The aspects of school climate that compose the social and emotional conditions for learning have more recently been conceptualized and studied in education [5]. The conditions for learning refer to those aspects of the school climate most proximal to learning and development.

Social and emotional skills are the cornerstone to a broad range of academic outcomes across the developmental span [6, 7] and labor market outcomes [8]. Children with well-developed social and emotional skills are able to calm themselves when angry, make friends, resolve conflicts respectfully, and make ethical and safe choices. Students with social and emotional skills are able to maintain healthy interpersonal relationships with peers and adults and employ an assortment of coping strategies to manage stress and difficult academic and social situations [9]. The conditions for learning are strongly related to both student academic and social and emotional outcomes and shaped by a myriad of characteristics, including supportive interpersonal relationships between teachers and peers; equitable and just approaches to discipline; accessible opportunities for meaningful student participation; effective classroom management practices; and high levels of academic and behavioral expectations and support [10].

Researchers from environmental studies, education, human factors engineering, and social psychology have established a relationship between the built environment of schools and student learning and performance [11, 12, 13, 14, 15]. The built environment of schools refers to the physical structure of a school including internal environmental qualities (IEQ; lighting, acoustics, and temperature) and settings (e.g., classrooms, hallways, or bathrooms) while related to a range physical attributes such as space, layout, or aesthetics. For instance, the built environment of schools and the quality of the school environment (from attributes such as lighting and noise) can either promote or hinder learning. For example, temperature and air quality have been shown to affect student achievement [11]. Similarly, artificial lighting can affect the mood and attitude of students, which in turn, influences academic performance [16]. Natural daylight has been shown to improve academic performance more than artificial lighting [17] while chronic noise exposure can impair cognitive activity such as reading [18] and impair pre-reading skills [19].

Align with the scope of research on the built environment of schools is a growing demand to employ affective (or “responsive”) designs for the built environment [20, 21, 22]. Traditional conceptions of affective system designs, such as amusement parks, casinos, and museums, involve physical attributes such as the space, layout, or objects in the environment that are planned to encourage social, emotional, behavioral, or cognitive responses toward a designated goal of the system, such as thrill, gambling, or learning. However, as the importance of promoting social and emotional skills continues to gain prominence, opportunities that engage teachers and students in the processes that facilitate learning and performance should be maximized. This optimization is dependent on the conditions for learning and the attributes of the built environment of schools. To understand how schools can be designed as affective systems, we need to understand the underlying relationship between the built environment and conditions for learning and begin to conceptualize which physical attributes are most salient to socialization processes.

The purpose of this paper is to: (1) address current research on the importance of social and emotional outcomes and socialization processes in school; (2) discuss affective systems and the conditions for learning as underlying mechanisms to student learning and performance; (3) summarize existing research that demonstrates the proximal and distal relationships between the built environment and conditions for learning; and (4) provide recommendations for human factors engineers in the learning sciences to further explore these important relationships.

2. Social and emotional skills and student socialization

Social and emotional (non-cognitive) skills significantly influence student learning and performance in school [6]. Evidence suggests that social and emotional skills of school-aged children can predict academic performance more strongly than cognitive skills and family backgrounds [23]. The core set of social and emotional skills are [17]:

- *Self-Awareness*: the ability to accurately recognize one's feelings, thoughts, and values; and assess one's strengths and limitations while maintaining a sense of self-confidence.
- *Self-Management*: the ability to regulate emotions, thoughts, and behaviors so one can manage stress, control impulses, self-motivate, and establish and monitor the success of personal and academic goals.
- *Social Awareness*: the ability to take the perspective of and empathize with others, understand and appreciate group similarities and differences, and recognize family, school, and community resources and supports.
- *Relationship Skills*: the ability to establish and maintain healthy and rewarding relationships through effective communication, fruitful cooperation, resisting inappropriate social pressures, resolving conflicts constructively, and seeking help as needed.
- *Responsible Decision Making*: the ability to make decisions based on ethical standards, safety concerns, social norms, respect for others, and regard for natural consequences as it pertains to individuals' personal and academic situations and well-being of one's school and community.

Social and emotional skills enable children and youth to address challenging social and academic situations and reduce problem behaviors such as disruptiveness and bullying that would otherwise obstruct learning opportunities for peers and lower the level of achievement in the classroom [24, 25]. For example, students who are able to regulate themselves emotionally and behaviorally in the classroom are better at attending to instruction and less likely to disrupt the focus of academic learning [26, 27, 28]. Conversely, when students are unable to demonstrate the necessary self-regulation in order to be successful in these situations, they experience academic and relational difficulties [29].

The development of social and emotional skills in school is fostered (or impaired) by socialization processes. Socialization refers to the ways individuals are acculturated to the norms, rules, values, and beliefs of a broader society [30, 31]. These processes are opportunities to learn, practice, and apply social and emotional skills toward mastery. In the case of schools, the organization is conceived as a social microcosm of the broader society [32]. This function assumes that the influence of socialization processes on student learning and performance are dependent on the conditions for learning. Thus, schools can provide support and opportunities that facilitate the development of school-based competencies by upholding safety, maintaining positive relationships with adults and peers, engaging student interests and compassion, offering mental health supports, and creating youth engagement and leadership activities. Conversely, schools can also perpetuate rigid and inconsistent bureaucratic structures while leading students to reinforce negative relationships with adults and peers, engage in physical and emotional violence, and encourage students' to disengage from school as a result of academic frustration, boredom, alienation, crime, harsh punishment, and alienation from the school community and its resources [33]. Related to these learning opportunities, schools in the U.S. have increasingly invested in intervention programs that focus on the promotion of social and emotional skills and the reduction of behavior problems among students [34]. The basis of these programs is the notion that schools are not only systems that influence student academic achievement; they are also places that facilitate socialization processes. From this perspective, it is an important goal of human-systems integration to identify those facilitators and barriers associated with the built environment and socialization processes of students.

3. Affective systems and the social and emotional conditions for learning

The traditional goal of human factors and ergonomics is to optimize the safety, comfort, productivity, and ease-of-use of products and systems [35]. The results enable human operators to identify the facilitators and barriers to interactions with the technical or physical environment. As such, the socio-technical systems perspective recognizes the transaction between the user and the system, as well as the boundaries and broader context of the environment. Within this scope is regard for affective designs that focus on maximizing users' engagement with products or systems by incorporating the emotions of users' to inform a design.

Responses to affective designs are regarded as positive (qualities of the product that engage users), negative (qualities that disengage users), or neutral (qualities that neither engage nor disengage users) [36]. For instance, when users perceive a product to possess positive aesthetic qualities their performance with the product is better than users with products that are not aesthetically appealing [37]. Thus, the influence of an affective design is important to

engage users' with a product or system. This is best exemplified in ergonomic studies of affective product designs of blood glucose meters, mobile phones, and websites [38, 39, 40], as well as macroergonomic studies of affective system designs with built environments of healthcare facilities [41, 42, 43]. Findings from these studies show that positive patient outcomes are associated with the positive affective designs of these products and systems. Similarly, as demonstrated in both healthcare and education, there is a strong emphasis on the notion that when the design of the built environment of a hospital or school resembles a home, patients are encouraged to ambulate toward designated social areas [43] and students are encouraged to transition with spaces designated for social interactions [44].

The underlying conditions for learning that compose an affective system for schools include four comprehensive factors[45]: physical and emotional safety, support, challenge and engagement, and social and emotional competencies.

3.1. Physical and emotional safety

Safety is a fundamental requirement for all schools [46]. Emotional and physical safety refers to freedom from actual and perceived emotional and physical harm, respectively. Students' actual and perceived safety in the school setting make it easier for them to demonstrate abilities, such as sustained attention, analytical reasoning, and effective communication that are required to succeed in school. Safety in schools lead to improved academic performance and reduced incidents of aggression and violence [47]. Conversely, when students feel unsafe at school, their confidence, motivation, commitment, attendance, and grades are affected detrimentally[48].

3.2. Support

Teacher support involves interactions that are fair and equitable, proactively inquire about students' needs and understanding of the content, and communicate about their academic progress. Teachers have an important role in providing support to attain positive student outcomes [49]. Effective instructional approaches also involve ensuring that school personnel work collaboratively to encourage, support, and nurture students. Effective teachers are those with the skills needed to provide supportive, responsive, and caring instruction that promotes the development of students' social and emotional skills [50]. Related to these skills are relationships and a sense of caring forged by teachers. Student-teacher relationships are among the most important connections that predict academic success and student well-being [51].

3.3. Challenge and engagement

When teachers have expectations for social and academic learning, engage students in school work, and provide relevant and rigorous curriculum, students' attitudes and behaviors towards school improve [52]. Teacher expectations also enable the implementation of student-centered approaches that involve cooperative or service learning activities and are associated with more positive student learning outcomes [53]. Conversely, when teachers have low expectations and minimal regard for student achievement, students demonstrate poor academic performance [54].

3.4. Social and emotional learning

Social and emotional learning (SEL) is the process of developing the social and emotional skills [9]. SEL interventions typically aim to improve relationships, attachment to school, and academic performance while reducing problem behaviors [6]. The implementation of these programs differ in the degree to which social and emotional skills are explicitly taught or integrated into academic curricula, address related topics (e.g., violence prevention, substance abuse, etc.), or feature SEL through curricular or instructional approaches.

We discussed how schools can be conceived as affective systems and outlined the underlying mechanisms of this system. The following section discusses attributes of the built environment that are most linked to socialization processes.

4. Influence of the built environment of schools on student socialization

After several decades of research on the built environment of schools there is now a growing regard for the interplay between the built environment and the mediating influence of conditions for learning [55, 56, 57, 58]. Because this relationship is regarded as indirect the focus has largely been on understanding the underlying mechanisms of this relationship. For instance, Uline & Tschannen-Moran [58] have extensively studied the influence of the built environment on school climate (academic press, community engagement, teacher professionalism, and collegial leadership) and found that environmental attributes (aesthetics, light, flexible and responsive classrooms, elbow room, and security) are most closely related to school climate and, in turn, student academic performance. To this end, this literature shows a relationship between the built environment and aspects of the conditions for learning (albeit in varying degrees of rigor) and different attributes of the built environment including space, layout, and aesthetics. We discuss each of these aspects of schools in turn below.

4.1. Space

Space is fundamentally social because it can be informed by the social aspects of the environment [59]. The environment can provide the necessary support for socialization processes linked to the social conditions for learning, such as cooperative teamwork or sense of belonging. For instance, instruction and learning are optimized with flexible spaces, such as classrooms with designated centers where students decide what, where and how they will learn, enabling student interactions and encouraging teacher collaboration [57]. Conversely, the influence of space is also demonstrated in research that highlights the importance of privacy (i.e. perceived ability to control social interactions) from social situations that may be detrimental to academic performance particularly within high density classrooms where achievement declines [60].

4.1.1. Crowding

The crowding of main entrances, pathways, circulation patterns, and other spaces is another key aspect of how school environments affect students. Crowding is the degree of perceived social density within school or classroom spaces [61]. The lack of space decreases privacy and increases attentional workload and cognitive fatigue [62], disruptive behaviors [63], and social withdrawal [64], while lowering academic performance [63]. Other evidence has shown a significant relationship between supervised (e.g., classrooms, cafeterias, pathways) and unsupervised (e.g., bathrooms) spaces and different aspects of school climate (e.g., teacher support, perceptions of safety) and academic performance [65, 66].

4.2. Layout

Related to the importance of smaller learning communities [67] and small school environments that promote socialization [68], the organization of the school layout can influence student learning and performance [69, 70]. For instance, Pasalar [69] investigated the spatial organization of integrated and segregated areas of the built environment of schools. The findings suggested that school layouts with ease of access, movement, and visibility of public spaces influenced higher rates of social interactions among students. The importance of classroom seating arrangement is also important particularly with arrangements (e.g., student/ teacher participatory interaction) that increase student engagement through teacher-student interactions [71]. Also, schools with adaptive school layouts, such as breakout spaces where students can work cooperatively or socialize and teachers can provide support, positively influence academic performance, particularly in early childhood [72]. For instance, classrooms with more breakout spaces in early childhood than adolescence are correlated with learning. Without an environment that supports these conditions, schools are more likely to perpetuate disorder and chaos that increases student behavior problems [73].

4.2.1. Safety and security

Safe school environments can protect students from harm, injury, or undue risk [74]. However, if the built environment has inadequate IEQ's such as poor lighting or overcrowded spaces, students feel unsafe, and in turn, demonstrate lower academic performance [11]. To improve school safety and security, schools are increasingly employing a range security measures to ensure student safety—including security guards, weapons screening, ingresses and egress, fire alarms, emergency lighting, and school disciplinary policies. However, security measures associated with the built environment, such as sign-in procedures, metal detectors, and locked doors, may result in high levels of disorder [75] that may exacerbate other influences of disorder, such as noise, student mobility, frequent changes in school personnel and peers, or minimal structure and irregular routines.

5. Summary and recommendations

The challenge for schools is to create environments that enable students to develop the requisite skills and capacities to perform in school and beyond. Evidence to date suggests that there is a relationship between the built environment, the social and emotional conditions for learning, and students' academic and developmental outcomes. Further exploration of this relationship would improve our understanding of those interactions and experiences within schools that most contribute to learning and performance.

Any conception of schools as affective systems requires a holistic account of all relevant physical attributes of the built environment that are related to socialization processes. To date, approaches to examine the effect of the built environment and student outcomes largely focus on one specific element of the school environment (such as the effects of lighting or ambient noise) without broader regard to students' overall experience. When students engage and interact in schools, it is within the framework of the whole environment; not just a single aspect. Given that these students are indeed the humans in the system—from a human-systems integration perspective—then efforts to align the design of the built environment to create positive conditions for social and emotional learning requires that policy makers, designers and architects take a holistic perspective. For instance, attributes associated with formal or informal opportunities of socialization may reveal more about human-system interactions, such as the influence of space on instructional approaches in the classroom, student engagement with SEL programs, or safe movement through “hot spots” (e.g., hallways, bathrooms, or cafeterias) susceptible to student misbehaviors.

To enable practitioners to apply the results of research to the school environment, a set of principles that bolster socialization processes can inform human factors engineers and architects who design the built environment of schools. In addition, the development of design principles to guide the design of the built environment to promote academic learning and performance may be helpful.

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