A Theoretical Study of School Spaces and Its Impact on Learning Outcome Performances

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Abstract

This chapter provides a summary of theoretical and empirical research on the impact of the built environment on schooling. It pulls together studies from various disciplines – architecture as it applies to the design of schools and classrooms, as well as education and social psychology – to examine the links that can be established between teacher–student interactions and the environments in which they occur.
The framework for evaluating learning environments is discussed initially in this chapter. The impact of school architecture on school design and culture, as well as classroom architecture and activities, is then demonstrated. It looks at how instructors and students deal with school buildings and classroom circumstances, in particular, to see how they teach and learn in these created environments. The most effective research demonstrates links between the classroom as a created environment and the pedagogy and social psychology that occurs within it. The chapter finishes with potential research questions for the future.

Keyword: *Learning outcome, school environment, Classroom spaces, School building*

Introduction

Framework for evaluating learning environments

Is there a link between education and a school's or a classroom's structure? The use of the school and classroom – that is, the connections between the classroom and its arrangement with the conduct of lessons within that classroom – plays a modest part in international educational research. Rather, the emphasis is on teaching and learning activities, with the school environment and classrooms where these activities take place being disregarded. Only a few educational researchers have investigated the relationship between school and classroom architecture and the learning that takes place there (Higgins et al. 2005; Woolner 2010).

Moos (1979), Steele (1973), and Bronfenbrenner (1973) were among the first to investigate the effects of the understanding situation on students. Models showing the relationship between environmental elements and student outcomes, as well as reflections on the importance of the environment in learning, are included in this research. Moos' approach emphasizes the impact of the physical environment on student outcomes as part of a larger environmental system. According to Moos, "architecture and physical design can impact psychological emotions and social behavior" (Moos 1979: 6).

Over time, Moos' model has sparked architectural and educational research, revealing new insights into the impact of the physical environment on student achievement and behavior.

As a result, the following two sections are devoted to architectural studies of school environment. There is a portion that looks at the matter from an educational perspective.

School spaces

The significance of school environment for instructors' and students' practice was underestimated for many years (Martin 2002): Many teachers do not perceive their school or classrooms to be a learning environment. Instead, they focus on the constraints of their school and classes (Walden 2009; Weinstein 2007, 2011). Students are also aware of the appalling conditions in their classrooms and schools. Teachers and students were able to verbalize their preferences for school buildings and classrooms when pressed further, as in Woolner et al (2007, 2011, 2012, 2013) investigations.

When we think about ways to improve teaching and learning conditions in our schools and classrooms, we'll notice that focusing on the built environment and its potential can help to encourage teaching and learning. Teachers' and students' perspectives must be examined and incorporated into the study themes.

School architecture

According to Gislason (2011), many studies on building quality and academic outcomes focus on indoor air quality, lighting, noise and acoustics, occupant density, and thermal comfort. The importance of these environmental variables is recognized by architects and construction engineers. This empirical research, on the other hand, just looked at the environment as a factor in school well-being and did not go into detail about how important it is for teaching and learning. Individuals' impressions of schools are influenced by the quality of facilities, which can serve as a source of community pride and improved support for public education. (Uline and colleagues, 2008).

School design and culture

The culture of a school, as well as how it teaches and learns, is influenced by its design. Is it possible that changes in teaching and learning have influenced school design and culture over the previous two centuries? Changes in teaching and learning have influenced school architecture and classroom design, according to most of the research in this topic (Gislason 2011)

The influence of school buildings on education

. Higgins et al. (2005: 7) present a summary of the current state-of-the-art research findings in this field:

- There is substantial evidence that basic physical elements (air quality, temperature, and noise) have an impact on learning.
- Once minimum standards are met, there is little evidence of the effect of modifying basic physical characteristics.
- On the impacts of lighting and colour, there is inconsistent evidence but strong opinions.
- Other physical traits influence pupils' views and conduct, but drawing firm, broad conclusions is challenging.
- It's just as necessary to think about the interactions of diverse elements as it is to think

about single elements.

Steele (1973), who highlighted the function of diverse classroom settings, is the basis for most of the educational research. According to him, the physical environment has an impact on how teachers and pupils feel, think, and act.

Classroom spaces

Steele's functions are very important for classroom teaching and learning: protection and shelter, pleasure, symbolic identification, task instrumentality, and social contact.

Security and shelter are the most fundamental purposes of any built environment. Physical safety is a precondition that must be satisfied, at least in part, before the environment may meet students' and instructors' other, higher-level needs. Furthermore, psychological safety, or the perception that school and classrooms are safe and pleasant places to be, is a critical requirement.

Pleasure: Equally vital is that teachers and students find their classrooms appealing and enjoyable. According to several educational research, having a pleasing appearance is beneficial to one's health.

Attractive classrooms have a beneficial effect on attendance and group cohesion (Horowitz and Otto 1973), as well as engagement in class discussions (Sommer and Olson 1980).

Symbolic identification: When classrooms and schools are designed by teachers and students on a regular basis, they are given a personality.

Task instrumentality: This function illustrates how the environment aids us in carrying out the tasks that teacher's desire.

Social interaction: The layout of desks, for example, might encourage social interaction or provide room for solo work. As a result, teachers might create student engagement clusters. The arrangement of students might also have an impact on teacher-student interaction.

Several studies have found that in classrooms with rows of desks, teachers spend the most time interacting with pupils near the front and Centre of the room. In this 'active zone,' students are more involved in class discussions and ask and answer more questions. The background theory supplied by the functions of classroom settings discussed above is used in many studies and research endeavors. Other studies investigate the design of classrooms and how it affects teachers' work (Martin 2002).

Classroom activities: Teaching and learning

Despite the continued usage of traditional classrooms, Higgins et al. (2005) contend that "our notion of learning itself is shifting." The rapid growth of technology-assisted, peer-to-peer, and self-directed learning, combined with research on learning styles, formative assessment, multiple and emotional intelligences, constructivism, and other topics, has resulted in significantly different approaches to the 30-students-in-rows model. Despite these developments, a sound scientific foundation for integrated and personalized learning environments is still required' (Higgins et al. 2005: 3). As a result, teachers must deal with both traditional and technological classroom environments.

Conclusion

According to Higgins et al., "it is extremely difficult

to arrive to clear conclusions about the impact of learning settings due to the multi-faceted character of environments and the resulting heterogeneous and disconnected nature of the research literature" (2005: 6). As a result, studies in this field must investigate the intricacies of teaching and learning in schools and classrooms.

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