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The Impact of School Design on Student Learning and Wellbeing

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ABSTRACT

This paper examines the significant influence of school design on student learning outcomes and overall wellbeing. The study reviews historical perspectives, theoretical frameworks, and methodologies used in researching school design. It explores how physical environments, including architectural elements and learning spaces, affect students' academic performance and emotional health. Case studies from Europe, North America, and developing countries highlight the benefits of innovative school design and its practical applications. The paper concludes with recommendations for policymakers and educators on leveraging school design to enhance educational experiences and student wellbeing.

Keywords: School design, Student learning, Wellbeing, Educational architecture, Learning environments.

INTRODUCTION

School design has emerged as a priority on educational agendas around the world. It is acknowledged that the quality of a school's-built environment can have a significant impact on the students who learn and grow there, as well as on the staff who work with them. This understanding has initiated a wave of school design or redesign policy initiatives and major capital works projects (e.g., new builds, refurbishment, and relocation) across many countries in Europe, North America, and Asia. Research now shows a multiplicity of ways in which the physical environment can have a positive and negative impact on educational attainment and, more recently, on wellbeing. Yet, as school design emerges and becomes a priority on national educational agendas, there are also concerns regarding the quality of design and evidence-informed practice. This is particularly the case in developing countries where advice and capacity building are greatly needed to ensure that the schools being built are fit for purpose, not just overpriced edifices that do little for students, staff, or the community [1, 2]. This paper focuses on the impact of school design on student learning and wellbeing. First, the interaction between school design, student learning, and wellbeing is considered in terms of the core claims regarding the importance and benefits of improved school designs through a review of the available literature on the area. Next, illustrations are provided of how these claims are being realized on the ground through a consideration of initiatives being undertaken in Europe and North America to capitalize on this growing evidence base. Then, the responses of some countries to these developments are examined to consider their implications, particularly for developing and newly formed countries with a focus on Asia, before concluding with a summary and some way ahead [3].

HISTORICAL PERSPECTIVES ON SCHOOL DESIGN

The Historical Perspectives on School Design section examines the evolution of school design over time. It investigates how the physical layout and infrastructure of educational institutions have evolved, considering key periods, movements, and influential figures that have shaped school design. This section explores the reasons behind particular architectural trends and their impact on the learning environment, providing valuable insights into the historical context of school design [4]. School design and its impact on students learning is not a new question, nonetheless, been an ongoing concern through the years. The success of students in educational institutions across the world is usually related to the institution's cost, resources, wellbeing, infrastructure, social curriculum, and a few more. Nevertheless, over the years,

filters of learning environments and designs have been placed over schools which inadvertently affected the outcome results of students across the globe. Analyzing the infrastructure, school design, educational curriculum, and social curriculum all together offers an accumulation of reason to address the question being discussed. In the year 1999, The Post and Courier published an article of the same name with strong parallels to today's topic. A radical voice of the community at the time was largely ignored and unheard, the institutions still ran their course as planned with little recourse and rethink towards how schools are designed and money until another voice of the community resurfaced again in March of 2013 [5, 6].

THEORETICAL FRAMEWORKS IN SCHOOL DESIGN RESEARCH

The design of schools has significant implications for how students learn, experience, and participate in educational settings. Building design encompasses all aspects that make up learning environments, including the size and use of space, furniture configuration, technology, and location. Learning environments, on the other hand, refer to the immediate, micro, or physical aspects of the setting where teaching and learning take place. Research exploring school design's physical character and how it mediates student learning is in demand, as the design of schools is largely responsible for shaping what education can be and how it is experienced [7]. Understanding the theoretical frameworks underpinning the area of school design is crucial for the advancement of this field. Many studies focus solely on contemporary challenges, leaving the theoretical underpinnings unexamined. However, school design inquiries are influenced by different perspectives from other disciplines, including psychology, architecture, and education. These perspectives offer insights into understanding the interaction between designed environments, social order, pedagogical scenarios, and the emergence of outcomes. Many of the theories leveraged in school design research have broad applicability and are useful in other educational subfields as well [8].

METHODOLOGIES FOR STUDYING SCHOOL DESIGN IMPACT

Various methodologies have been developed to investigate the impact of school design on learning and wellbeing. Research studies typically employ quantitative measures, qualitative measures, or mixed methods approaches. For example, an analysis of a 21st-century-designed middle school's impact on student achievement used a mixed methods approach, investigating the impact of the school design on reading achievement using quantitative data and the impact of the school design on STEM instruction, student engagement in learning, and student achievement using qualitative data. Focus groups and observation protocols have also been employed as qualitative measures to explore the educational effectiveness of a new school design [9, 10]. A method using a retrospective online survey was also developed (co-designed with students) to investigate the long-term impact of school design on student learning and wellbeing, taking the transition from old to new school as a critical event. The online survey comprised 49 items divided into six constructs, including learning practices, perception of learning environments, and intentionality. The simple performance measures of gpas in mathematics, humanities, and arts subjects were also included. Data were collected from 355 students from grades 6–12 and analyzed with multilevel modeling techniques. The results revealed both the direct and indirect longitudinal positive influences of learning environments and intentionality on wellbeing through various educational practices [11].

KEY FINDINGS AND CASE STUDIES

The research and empirical studies regarding the impact of school design on student learning and wellbeing are plentiful. A few of the significant findings will be noted along with case studies that illustrate how selected design elements have a direct impact on students. An analysis conducted by Schwartz found that within 3 years after a new school resulted from an innovative design approach, math and science scores increased significantly. Additionally, a case study conducted by Ortiz examined how the deliberate design of a new campus added excessive value to social engagement, school culture, collaboration, accessibility to technology, safety, and acoustics. In both examples, design clearly and objectively impacts educational experience. Schwartz examined the outcomes of a newly constructed middle school designed around changing the physical environment. A changed physical learning environment consisted of a 21st-century designed school building and pedagogical changes regarding instruction in mathematics and science. Case study data were collected formally from district documents, the school's website, public records, and emails between the author and district personnel. The population surveyed included 189 seventh- and eighth-grade students at the newly designed middle school and 207 seventh- and eighth-grade students at the comparison middle school. The competitive two-school population included students entering seventh grade in the same year. Quantitative data were collected through a retrospective pretest mathematical and science achievement survey. Both school buildings were compared before and after the implementation of the new school. A paired t-test was used to analyze the

data at a 0.05 level of significance for the two school sites. The significance level of the spray of results is <.0001, indicating that the new middle school positively affected student achievement in mathematics and science. The results demonstrate that when given a personalized experience, all subgroups of students benefited from the holistic design approach [12].

IMPLICATIONS FOR EDUCATIONAL POLICY AND PRACTICE

The Implications for Educational Policy and Practice section explores the practical applications and policy implications stemming from the research on school design's influence on student learning and wellbeing. It delves into how the findings and insights can inform educational policies, architectural guidelines, and classroom practices to foster conducive learning environments and enhance student wellbeing. This section aims to bridge the gap between research and real-world implementation, offering actionable recommendations for educational stakeholders and policymakers. Titled "The Impact of Learning Environments on Student Engagement," this research focuses on the relationship between learning environments and student engagement. Over 33 years of providing architectural services to Texas public school districts have resulted in the construction of millions of square feet of learning environments across more than 100 campuses. This has prompted interest in the need to know if the schools designed benefit learning and how. While a variety of unique architectural learning environments were examined in previous studies, this research investigates five mid-texas public school facilities designed and constructed by VLK Architects from 2007 to 2015. Variables in developing school settings assembled in this investigation include individual learning environments caused by decisions in site and infrastructure; building systems, technology, and equipment; interior architecture, furnishings, and fixtures; and environmental/landscape conditions. To measure engagement, observation tools were developed and utilized to measure samples of teachers and students. Each selected teacher had their classes observed in their respective environments. This created a relative measurement of the engagement levels teachers had over the period of one regulation school day. Each observation took place for 45 minutes with five aforementioned data measurement variables collected: classroom setting, student's attention/off-task behavior, teacher's level of engagement, classroom noise levels, and teaching modality. Data collected from each observation site varied in context and intensely describing each learning environment and its impact on student engagement [13, 14, 15].

CONCLUSION

The design of school environments plays a critical role in shaping student learning and wellbeing. Historical trends and theoretical frameworks underscore the importance of well-considered school designs that prioritize functionality and student engagement. Empirical evidence, including case studies from various regions, illustrates how innovative school designs can lead to significant improvements in academic performance and student wellbeing. As educational institutions continue to evolve, it is imperative for policymakers and educators to prioritize evidence-based design strategies that foster positive learning environments. In doing so, they can ensure that schools not only serve as places of education but also as supportive environments conducive to holistic student development.

REFERENCES

1. Altomonte S, Allen J, Bluyssen PM, Brager G, Heschong L, Loder A, Schiavon S, Veitch JA, Wang L, Wargocki P. Ten questions concerning well-being in the built environment. Building and Environment. 2020 Aug 1; 180:106949. Sciencedirect.com
2. Minkos ML, Gelbar NW. Considerations for educators in supporting student learning in the midst of COVID-19. Psychology in the Schools. 2021. Nih.gov
3. Govorova E, Benítez I, Muñiz J. Predicting student well-being: Network analysis based on PISA 2018. International Journal of Environmental Research and Public Health. 2020 Jun;17(11):4014. Mdpi.com
4. Rosyadi I, Aprilianto A, Rofiq MH, Bisri AM. Development of Islamic Educational Institutions in Increasing Competitiveness in Madrasah Tsanawiyah. Chalim Journal of Teaching and Learning. 2023 Sep 18;3(1):52-63. Jurnalikhac.ac.id
5. Huang R, Ritzhaupt AD, Sommer M, Zhu J, Stephen A, Valle N, Hampton J, Li J. The impact of gamification in educational settings on student learning outcomes: A meta-analysis. Educational Technology Research and Development. 2020 Aug; 68:1875-901. [HTML]
6. Moore S. The design models we have are not the design models we need. The Journal of Applied Instructional Design. 2021;10(4):11-9. Amazonaws.com
7. Ibáñez MB, Portillo AU, Cabada RZ, Barrón ML. … of augmented reality technology on academic achievement and motivation of students from public and private Mexican schools. A case study in a middle-school …. Computers & Education. 2020. Academia.edu

8. Armstrong PW, Brown C, Chapman CJ. School-to-school collaboration in England: A configurative review of the empirical evidence. Review of education. 2021. Wiley.com
9. Othman AR, Ruslan NA, Zahrah W. Impact of Physical Learning Environment Towards Studentsâ€™ Performance at Taylorâ€™ s University. Environment-Behaviour Proceedings Journal. 2022 Mar 31;7(19):101-10. E-iph.co.uk
10. Curtis B. The Nature of the Community College Leadership Shortage Crisis: a descriptive work-based study. 2021. Usq.edu.au
11. Jadil Y, Rana NP, Dwivedi YK. Understanding the drivers of online trust and intention to buy on a website: An emerging market perspective. International Journal of Information Management Data Insights. 2022 Apr 1;2(1):100065. Sciencedirect.com
12. Wannapiroon N, Pimdee P. Thai undergraduate science, technology, engineering, arts, and math (STEAM) creative thinking and innovation skill development: a conceptual model using a digital …. Education and Information Technologies. 2022. Springer.com
13. Alquhtani S. Spatial distribution of public elementary schools: A case study of Najran, Saudi Arabia. Journal of Asian Architecture and Building Engineering. 2023 Mar 4;22(2):705-25. Tandfonline.com
14. Long SW, Olsen RJ, Christensen PA, Bernard DW, Davis JJ, Shukla M, Nguyen M, Saavedra MO, Yerramilli P, Pruitt L, Subedi S. Molecular architecture of early dissemination and massive second wave of the SARS-cov-2 virus in a major metropolitan area. Mbio. 2020 Dec 22;11(6):10-128. Asm.org
15. Karimi A, Kim YJ, Zadeh NM, García-Martínez A, Delfani S, Brown RD, Moreno-Rangel D, Mohammad P. Assessment of outdoor design conditions on the energy performance of cooling systems in future climate scenarios—A case study over three cities of Texas, Unites States. Sustainability. 2022 Nov 10;14(22):14848. Mdpi.com

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