

**EDUCATIONAL FACILITIES:
THE IMPACT AND ROLE OF THE
PHYSICAL ENVIRONMENT OF THE SCHOOL
ON TEACHING, LEARNING AND EDUCATIONAL OUTCOMES**

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**Publications in Architecture and Urban Planning
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ABSTRACT

It is often argued that the quality of the educational environment is rapidly diminishing due to the plethora of social and economic problems plaguing urban communities. As a result of the present crisis, the physical infrastructure of the school system has been virtually ignored. To what degree has this frail physical infrastructure affected education over the past ten years and, what is the impact and role of the school building in achieving the performance outcome-based goals of educational reform? This document reviews the body of evidence over the past twenty-five years in an attempt to address this question. The physical setting of the school is reconceptualized as an integral part of the total educational environment. The author synthesizes existing models and frameworks developed within educational, environmental psychology and architectural literatures in an effort to develop one conceptual framework that would direct further applied research on educational environments. Pp. vi + 133; illustrated.

RELATED PUBLICATIONS

Buildings in Use, by Harvey Rabinowitz, 1975.

Case Studies of Child Play Areas and Child Support Facilities, by Uriel Cohen, Gary T. Moore, & Tim McGinty, 1978.

Recommendations for Child Care Centers, by Gary T. Moore, Carol Gee Lane, Ann B. Hill, Uriel Cohen, & Tim McGinty, third revised edition, 1994.

Recommendations for Children's Play Areas, by Uriel Cohen, Ann B. Hill, Carol Gee Lane, Tim McGinty, & Gary T. Moore, 1979.

Children and Museums, by Uriel Cohen & Ruth McMurtry, 1986.

Educational Facilities for the Twenty-First Century: Research Analysis and Design Patterns, by Gary T. Moore & Jeffery A. Lackney, 1994.

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PREFACE AND ACKNOWLEDGEMENTS

"They're always talking about 'we're the future of America,' and they won't even give us a decent place to learn"
a junior high school student in Alabama

In 1993, school districts across the U.S. completed a record \$10.79 billion in total construction, with \$4.6 billion (42.5%) being new construction.¹ Yet, ironically the existing infrastructure of urban schools continues to deteriorate. As a result of the present crisis in the educational quality of American schools, resources have been generally diverted to educational reform measures at the expense of the physical infrastructure of the school system. In short, the deteriorating state of urban school facilities have been virtually ignored by the public and educational policymakers alike.

It is my contention that facilities are having a detrimental effect on the education of children in urban areas. For instance, the American Association of School Administrators recently published a summary report which claims that "nearly 5 million children are subjected to substandard schools every day"². A recent study by Mareen Edwards claims that educational building conditions, such as deferred repair and renovation, in the Washington, D.C. area are influencing student performance estimating that improved facilities could lead to a 5.5% to 11% improvement on standardized tests³.

Public recognition that school buildings in many communities across the nation are in poor condition is growing. Currently, many school districts across the country are in the planning stages of a massive upgrading of the facility infrastructure. Demographic projections indicate a continued increase in K-12 populations over the next 10 years. Despite the urgency, there is no consensus among the taxpaying public, state departments of public instruction, or local school districts as to what constitutes the real needs of schools and how best to address these needs once they are identified. In addition, there is little agreement among teachers, administrators, public officials or the public at large regarding the significance of these statistics, or whether school buildings even impact educational performance in any substantial way.

This document addresses the issue of the impact and role of the school building on the educational process. Further, it synthesizes and builds upon existing models and frameworks developed within educational, environmental psychology and architectural literatures in an effort to develop one conceptual framework that would direct further applied research on educational environments.

¹Abramson, P. (1994). Still Growing. *American School & University*, May, 35-44.

²AASA (1992). *Schoolhouse in the red: A guidebook for cutting our losses*. American Association of School Administrators.

³Edwards, M. (1991). Building conditions, parental involvement, and student achievement in the DC Public School System. Unpublished master's thesis, Georgetown University, Washington, D.C.

The body of this work attempts to achieve three main goals: first, to establish an agenda for future research on school environments by identifying areas which have not been empirically studied; second, to provide architects and educators with a explicit list of key concepts which have the most justification for consideration; and finally, to increase awareness within the educational community and the wider national audience of the neglected role of the physical environment of the school of the process of education.

Chapter 1 provides an introduction to the scope of the problem of a deteriorating school infrastructure in the United States. Chapter 2 offers a case study of the Milwaukee Public Schools Facility Master Plan as a illustrative example of the societal context within which these issues are often resolved (or ignored). Chapters 3 and 4 provide the substantive body of the document reviewing the literature in detail. Two distinct reviews of the literature on educational environments are developed: the first from an analytic perspective (Chapter 3), and the second from an integrative perspective(Chapter 4). Chapter 5 addresses the process of developing and managing school facilities, critiquing and reconceptualizing the current educational facility planning model. Chapter 6, acting as the concluding chapter of the document, synthesizes and builds upon existing models and frameworks developed within the educational, environmental psychology and architectural literature in an effort to develop one conceptual framework -- a Multidimensional Model of Educational Environments -- from which to direct further research on educational environments. Finally, an annotated bibliography is provided in the Appendix.

This publication represents a collection of working papers by the author. As a result, the reader will experience some subject overlap between chapters. In addition, references are intentionally retained at the end of each chapter to facilitate further study and investigation.

I would like to acknowledge the following individuals who have offered their insights on my on-going work: Gerald Weisman, Harvey Rabinowitz, James Cibulka, Gary Moore and especially Jill Dittrich. The conceptual model developed in the final chapter is but the latest in a series of versions inspired by numerous Thursday night debates with my colleagues Herb Childress and Maggie Calkins. Finally, I would also like to acknowledge the support of the Johnson Controls Institute of Environmental Quality in Architecture and its director Larry Witzling.

*Jeffery A. Lackney
July 15, 1994*

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