What Research Tells Us: Green Schools and Student Achievement

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ABSTRACT

With the advent of Green Schools in the educational establishment, the theory was advanced that these schools would have a great deal of influence upon student and teacher performance. However, there has been little research conducted using certified Green School because of the paucity of such schools. The National Research Council of the National Academies of Science enlisted a group of scholars to investigate the possible relationship between Green Schools and student achievement. The committee had difficulty finding any research available that addressed the topic. The findings from existing research have produced mixed results. At the same time, research efforts on the relationship between Green Schools and student and teacher performance have slowed and different variables have been employed to try to find out the possible influence upon the users of the Green School. This recent development is encouraged by the US Green Buildings Council, which is developing a new research agenda.

KEYWORDS

Green Schools, Research, School Building Age, School Building Condition, Student Achievement, Student Health, Sustainable Schools

INTRODUCTION

School buildings become the home away from home for students and normally an exciting workplace for teachers and administrators for a large part of the day most of the year. The building itself works to influence the attitudes of students, teachers, and parents by the arrangement of spaces, location, classroom accoutrements, site, building finishes, circulation patterns, sounds and smells, and interactions with the building itself. This makes for a history of experiences relative to being in school. The building also has influences beyond attitudes and experiences. The building can also have an influence upon performance and health of the occupants. It is common knowledge that the building itself influences how students learn and how teachers work, but determining the extent of this influence is challenging to researchers.

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With the introduction of high performance and sustainable school buildings, a movement called Green Schools became very current. The definition of Green Schools varies from region to region, but there are certain commonalities that can be associated with schools that have high performance and sustainable components designed and constructed into the structure. Several states have definitions of Green Schools that can be called high performance structures. California, Washington, and Massachusetts have developed guidelines for the design of such high performance, sustainable school buildings and of course, the U.S. Green Building Council has developed guidelines for Green Schools.

With the high expectations of an environmentally friendly school building, comes the suggestion that perhaps these buildings could also be more beneficial to students and teachers than conventionally built buildings. That proposition is very enticing for researchers and for those involved in designing Green Schools. As a result, the proposition becomes more of a question of do students perform better in Green Schools than in conventionally built schools or do Green Schools even have an influence upon student and teacher performance and health.

The research that has been completed to date on the possible influence Green Schools may have upon the users of the school is a very intriguing proposition that needs exposition. Research dealing with that proposition in general will be discussed, as will the new directions in research relating to the cognitive development of students in Green Schools in the remainder of this article.

RESEARCH STRANDS

There seems to be several large strands of research associated with Green or Highly Sustainable School buildings. These strands of research deal with the influence Green Schools have upon user performance, health, cognitive development, attitudes, the cost effectiveness of green components, and how the educational component is implemented. A very large corpus of research studies exist dealing with the efficiency and economy of Green Schools. This first body of research deals with the cost of a sustainable building and the resulting payback that the building produces. Research findings have well documented that Green Schools sufficiently pay for their greenness through the systems incorporated in the school buildings and that the payback for incorporating sustainability material into the buildings is relatively short. This is welcomed news for school systems that have an already strained operating budget. This corpus of research studies, however, is beyond the scope of this discussion.

Of equal importance about Green Schools is the fact that the buildings possess an exciting, influential, and educationally sound environment that supports the learner. It is to the latter feature of a Green School that this article is addressed. The possible relationship between a Green School building and student performance is a very important concept that has been investigated and which needs more research effort. This strand or line of research could be described as the studies completed by researchers trying to investigate the relationship between Green Schools and student and teacher performance. The third strand or line of research is represented by those researchers who are investigating the educational efforts of teachers in meeting the criterion of making the school building a teaching tool. The fourth strand of research seems to be those efforts to investigate the possible influence Green Schools have upon the health, cognitive development, and attitudes of students and users of the school building.

The strand of research with which the present discussion investigates contains those studies that deal with the possible influence Green Schools have upon student and teacher performance. With the introduction of Green Schools to the inventory of school buildings, the idea that these schools would surely have a positive influence upon student and teacher performance was raised. Studies in this area of inquiry typically have identified Green Schools as one segment of the population. The other segment of school buildings would be those buildings that are not considered as being green. These latter school buildings would not have the elements of greenness in their construction. The academic test scores of those students in Green Schools would be compared with the academic test scores of those students in conventionally built schools.
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