

Facility Impact on Student Achievement

Until recent times, the impact of school facilities on student achievement was only a point of conjecture. However, in the last decade, several studies have shown that school facilities have an impact on student achievement, especially when the environmental aspects of the facilities are considered. Optimizing these aspects will have a positive impact on student achievement. The major elements affecting achievement are:

- a. Acoustics – Learning spaces need noise controls (1) to reduce the background level of noise generated in the room, (2) to reduce echo, (3) to reduce reverberation, and (4) to prevent outside sound transmission into the room. Providing an environment that limits acoustical distraction to between 35-40 decibels increases concentration time and scores on a variety of tests.
- b. Light – Although there have been numerous studies from the 1930's to the present showing the importance of good lighting, recent studies show that natural light in classrooms fosters student progress more than artificial light.
- c. Temperature and Humidity – A number of studies have determined that students perform mental tasks best in rooms kept at moderate humidity levels (40% - 70%) and moderate temperatures (68⁰ F – 74⁰ F).
- d. Indoor Air Quality (IAQ) – Poor indoor air quality (airflow of less than 10-20 ft³/min/person) has a two-fold negative impact on student achievement through (1) chronic student and staff absenteeism and (2) increased carbon dioxide levels that decrease concentration times. Improved air quality promotes healthier students and staff, thereby decreasing absenteeism and measurably increasing achievement. The building condition assessment conducted several years ago identified substandard fresh air and ventilation systems at both Lincoln and Walla Walla High School. Additional scientific studies would be necessary to determine if either of the two high schools have IAQ issues due to airborne contaminants (such as bacteria, mold, etc.).

The subcommittee noted, however, that capital expenditures and the age of school facilities are not in and of themselves determinants of student achievement.

The size of schools is also a factor in student achievement. Since school size is a separate Task Force study topic, more on that topic can be found in that report. However, to the extent that the subject crosses over into this area, we have found no evidence that larger schools are superior to smaller schools in terms of student achievement.

In summary, the subcommittee found that numerous scientific studies show a relationship between school facility factors and student achievement.