Illuminating the Pupils of Tomorrow:

Correlation between Lighting and Student Performance

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Abstract

Often overlooked, lighting is an underlying factor that subtly influences intellectual progress. This study examines the correlation between environmental lighting and student performance. The hypothesis stated that the integration of daylight and full-spectrum lighting in public schools, instead of typically used incandescent and fluorescent, will benefit overall academic performance. As the independent variable, the main sources of light examined in this study consisted of natural daylight, fluorescents, light-emitting diodes (LED), and incandescent. The dependent variable was student performance: standardized test scores, achievement gain, school attendance and ability to overcome distractions. The statistical data analyzed through hypothesis testing indicated that rooms with higher amounts of natural daylight correlated to student performance by increasing mathematic test scores over ten percent. Statistics showed that fluorescent tubes compared to sunlight diminish student capabilities by significant amounts; when comparing white versus full-spectrum fluorescent lights, the mean number of distractive off-task behaviors averaged a notable fluctuation in data. Further figures were compiled to compare the light output, average lifespan, and Color Rendition Index of average electric lights.

The conclusion drawn from this study agrees with the hypothesis: student performance in public schools will improve by illuminating classrooms with the maximum amount of natural sunlight, and when unavailable, a balanced combination of full-spectrum electric lights that imitate daylight. By gradually incorporating such lighting in schools, students will academically benefit, while classrooms remain a nurturing environment for scholastic development.