

Name of the approach/ tool/project

A dynamic lighting system with pre-programmed light scenes that enhances the learning environment and contributes to the well-being of the children and teachers: Philips SchoolVision.

Description (methodology, techniques and strategies used)

During childhood essential information processing skills are developed, from which people benefit for the rest of their lives. The light conditions in schools can enhance and contribute significantly to this development. Having enough daylight at school is important and contributes to school performance. In addition a proper lighting system can help transform the entire school experience with lighting that meets the visual, emotional and biological needs of pupils and teachers alike.

The SchoolVision lighting solution is based upon lengthy scientific research from two universities: the University Hospital in Hamburg-Eppendorf (Germany) Clinic for Child and Youth Psychology (2008/2009) and the University of Twente in The Netherlands (2009/10). The SchoolVision research reflects Philips' ambition to improve the quality of life for people by being a knowledge partner in innovative and energy-efficient lighting.

SchoolVision lighting is a lighting system which allows both the intensity and the color temperature of the light to be adjusted to suit the activity in the classroom. Using a control panel, the teachers can tailor the lighting in the classroom to suit what they are doing at the time. They can choose between the 'Energy', 'Calm', 'Standard' or 'Concentration' settings. 'Energy' corresponds to the light on a clear summer's day, whilst the 'Calm' setting recreates the gentle light from the evening sun.

What is innovative about this approach/tool/project

Since long it is known that light affects human wellbeing. This is confirmed in many scientific studies (for instance: Fleischer, 2001; Baron & Rea, 1991; Campbell, 1990). Light influences vision and emotion, it can increase alertness, suppress sleepiness, as well as light can be used for treatment for seasonal depending depressions.

The SchoolVision research show for the first time tangible results on the positive impact of light on children that enhances the learning process in the classroom.

Evidence of results and impact

The SchoolVision studies show an improvement of children concentration levels, reading speed, co-operative behavior and motivation, appreciation of the learning environment and a reduction of hyperactivity.

The Hamburg study documents a reading speed increase of 35%, concentration improves, thereby reducing errors 45% and classroom hyperactivity is reduced by 76%. “Our study makes it clear that adjusted Dynamic Lighting in classrooms has an extremely positive effect on children’s learning behavior”, said Professor Shulte-Markwort, director of the Clinic for Child and Youth Psychology at the University Hospital in Hamburg-Eppendorf, responsible for the study.

[Source: Schulte-Markworth, M., Barkmann, C. & Wesselowski, N. Effect of Light in Schools. CIE x035:2010: Proceedings of CIE 2010 "Lighting Quality and Energy Efficiency" 14-17 March 2010, Vienna, Austria. 2010. ISBN 978 3 901906 83 1.]

The Dutch study reports 18% higher concentration level of children, higher long term motivation levels and a higher appreciation of the learning environment for both short and long term. “The effect size found on concentration is as big, if not bigger, than the effect of new learning methods and / or dedicated teacher courses”, said Professor Peter Slegers of the University of Twente, lead researcher of the study.

[Source: Slegers, P., Moolenaar, N., Galetzka, M., Pruy, A. (2010), Licht op concentratie. Presentation. Report in preparation.]

Costs associated with the development and implementation of the activity

In addition to the enhanced learning benefits of the SchoolVision solution, it also brings energy savings. These savings can –dependent of the existing installed lighting- move up to 60%. For a reference classroom of 7.20x7.20 meter the SchoolVision lighting solution consumes only 5.7W/m² while many existing classroom lighting consumes more than double energy. On a child’s 6-year primary school life span, the investment level for SchoolVision is no more than 5 eurocents a day.

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