Classrooms with a View:
The Benefit for Student Learning Outcomes[1]

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An established body of research on the built environment highlights the importance of windows for daylight for a person's well-being. But research also shows that windows provide a benefit beyond daylight penetration – they afford the opportunity for a person to view the outside world. Environmental psychologists call this view a "prospect" – a panoramic vista of nature and it is an experience that resonates as a deeply-held spatial pattern. This instinctive need for and enjoyment of expanded views is an example of *biophilia*, the human desire to connect with nature.

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> *Windows and Classrooms: A Study of Student Performance and the Indoor Environment (2013)*

Studies based in the neurocognitive and health sciences, attention restoration theory, and the emerging field of *biophilic design* confirm the importance of connecting people who live, work, and learn inside of buildings to their natural surroundings for both physiological and psychological health. One such biophilic design element is the visual access to the natural environment – in other words, a room with a view.

Rooms with a view are found to:

- Allow for cognitive restoration and recovery from focused activity
- Emerge novel ideas and solutions via unconscious neurological insight processes
- Enhance productivity
- Expedite healing
- Promote the feeling of engagement, relaxation, and receptivity
- Provide visual eye rest
- Reduce stress levels

Furthermore, research on learning spaces and student outcomes suggest similar benefits from *classrooms with a view*:

- Better academic outcomes across cores disciplines
- Increased attention span
- Enhanced cognitive functioning
- More positive classroom experience

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For example, a 2003 study by the California Energy Commission involving over 8,000 students and 450 classrooms noted *"variables describing a better view out of windows always entered the equations as positive and highly significant."* The study concluded:

> *The visual environment is very important for learning. An ample and pleasant view out of a window, that includes vegetation or human activity and objects in the far distance, supports better outcomes of student learning.*

Moreover, students in classrooms with nature views not only had better grade performance, but also rated the learning experience more positively (Benefield, etal., 2015). And, in a randomized controlled experiment (Li & Sullivan, 2015), researchers found that classroom views to green landscapes caused *"significantly better performance on tests of attention and increased student's recovery from stressful experiences."*

Delving more deeply into the definition of classroom view, Tanner's 2008 study of 71 schools, described five distinct view patterns in the school environment, each with an accompanying hypothesis:

(1) Views overlooking life. Students need vistas to the outside world that are not overlooking a wall or parking lot.
(2) Unrestricted views. Windows should be available within the classroom, and when glare is not a problem, without obstructions such as posters and curtains.
(3) Living views. From the classroom, not necessarily from the sitting position, students should be able to view some indoor spaces and outdoor spaces such as gardens, wildlife, fountains, mountains, and the sky.
(4) Functional views. Doors and windows should allow the student to easily see at least 50 feet outside the classroom.
(5) Green areas. It is important for the student to see outside spaces, close to the school building, having trees, grass or gardens. There should be few views of parking lots and roads.

Tanner's results indicate that views significantly influenced the variance of student outcomes in reading vocabulary, language arts, mathematics. The study also supported previous research (Fielding & Nair, 2005) reconfirming the value of the functional view and students' opportunity to rest their eyes by allowing a minimum view of at least 50 feet. The research did not find an effective difference between classrooms with a view and ones with a "commanding" view.

The size of the window and it's effective on student outcomes was addressed in a study across three school districts (Heschong, Wright, and Okura, 2002). The study coded windows in classrooms by ranking from 0 (None) to 5 (Excellent; large windows on two sides). Classrooms with the highest window code were found to be associated with a faster rate of academic improvement over a year's time. The authors did concede a significant limitation in the design. While the study found a higher rate of academic improvement present within spaces with daylighting and window elements, the research design could not provide a definitive causal effect between the two. With that said, the study offered for consideration that the increase in performance rates might be linked to *"improved vision, improved morale, and improved health."* The calming effect of a connection with the natural world (weather, time of day) was also put forth as possible factor.

Providing some nuance to this finding on window size, research by Barrett and colleagues (2015) point out that orientation and risk of glare must be considered for students to benefit from the optimum window size.

While research has explored the positive physiological and cognitive benefits of (class)rooms with a view, less is known about how biophilic design elements impact the behavioral dimension of learning. Education leaders and practitioners, however, have advanced onto this learning edge to explore how the built environment can support their students' social-emotional learning and growth. In one example, the Codman Academy in south Boston, created trauma-informed principles to guide the design of learning spaces for students with adverse childhood experiences (Balonen-Rosen, 2015).

Codman, a K-12 public charter school, used biophilic design to attend to a student population who may bring to school the experience of homeless, hunger, or a home effected by substance addiction. Called "A Walk in the Woods," the physical design of the learning space is calming, welcoming and natural. A description of the design referenced the 1984 landmark study by environmental psychologist, Robert Ulrich. Ulrich's work found that hospital patients who viewed leafy trees healed faster than patients who only saw buildings outside their windows.

At Codman, open spaces, natural wood interiors, muted earth tones, exposed brick, and bright windows are the hallmark of a design intended to reduce anger, anxiety, sustain attention, and engage interest. The school strikes a *"delicate balance between exposed areas and intimate spaces, the designers embraced glass walls on some rooms, which allow a single line of sight down their path-like hallway, plus nooks with benches."* And, as a testament to the design, one seventh grader said, *"It's our personal building now."*

This paper provides Codman as a concluding example for three reasons: First, it demonstrates a real-world example of nature-connectedness and interior school environments; second, it is an exemplar of how intentional school design decision making begins with the students in mind; and, third, it speaks loudly to the driving question of any deep inquiry into learning space design: "What is best for the daily well-being of our young humans?" This question, and the research at hand, can help guide the conversation on prioritizing the need for classrooms with a view.

About the author:

Dr. Julie Zoellin Cramer is the founder of Wayfind Education, an education research consulting group with a mission to support better learning experiences and environments for all students. As an education researcher and strategist, Dr. Cramer studies innovative learning and teaching practice and the alignment with physical learning spaces. Prior to establishing Wayfind Education, Dr. Cramer was the founding Deputy Director of the Institute for Entrepreneurship in Education at the University of San Diego where she launched the Learning Space Design Project. Continue the conversation with Julie on twitter: @jazcramer.

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