**Shedding Light on the Learning View:**
**The Dynamics of Interior Classroom Windows and Glazing**[1]

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## Established Benefits of Exterior Windows

An established body of research on the built environment highlights the importance of exterior windows in terms of daylighting and a view of nature for a person's well-being. 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

Delving more specifically into the school environment, a study of 71 schools (Tanner, 2008) found that the benefits of views significantly influence the variance of student outcomes in reading vocabulary, language arts, mathematics. Furthermore, a recent study in K12 schools (Cramer & Phillips, 2019) confirmed the educators' understanding of the benefits of exterior windows. A substantial majority of participants responded to natural daylight (95%) and views to nature (85%) as either very important or important to a collaborative learning environment.

**V**iews significantly influence the variance of student outcomes.

## Implications for Interior Windows and Glazing

Pertinent to this brief, one of the contributions of Tanner's work is the definition of **five distinct spatial view patterns** which provides implications not only for exterior windows, but also for interior windows and other glazing between spaces. Two exterior view patterns supporting student outcomes include **views overlooking life** (i.e., vistas to the outside world that are not overlooking a wall or parking lot) and **green areas** (i.e., ability to see outside spaces, close to the school building, having trees, grass or gardens with few views of parking lots and roads). Three patterns support student outcomes with some relation to interior spatial features:

**Unrestricted views.** Windows should be available within the classroom, and when glare is not a problem, without obstructions such as posters and curtains.
**Functional views.** Doors and windows should allow the student to easily see at least 50 feet outside the classroom.
**Living views.** From the classroom, students should be able to view some indoor spaces and outdoor spaces such as gardens, wildlife, fountains, mountains, and people.

Further exploring the use of interior learning spaces designed for collaboration, the Cramer and Phillips study offered an expansion upon Tanner's definitions. The participant experience of interior windows and glazing

embodied a **sixth view pattern** described as the **"learning view"** – a spatial pattern to visually connect the variety of interior spaces needed to prepare students for the age of innovation. And, central to this pattern, was the use of glass windows, walls, and doors for spatial transparency. Architects Nair and Fielding (2005) also reference a design pattern of transparency as an **interior vista** to *"provide glazing into the student work areas, to bring light into corridors, reduce the closed-in feeling of the classroom, improve security and create a feeling of openness."*

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## Emerging Benefits of Interior Windows and Glazing – the Learning View

The question remains, can research shed light on whether the learning view – the glazing and line-of-sight connections between interior spaces – better supports innovative learning and teaching activities? Drawing from the previously cited work as well as other research and practice, the following table offers some insight into the ways in which learning views might support today's learning environments.

| Emerging Benefits of Interior Windows and Glazing – the Learning View | | |
|---|---|---|
| Allows eyes to take a break | Rest the eyes by allowing a minimum view of at least 50 feet | *"This allows tired eyes that spend hours focusing on things close at hand including notebooks, textbooks and computer screens a needed relief."* (Nair & Fielding, 2005) |
| Allows minds to take a break | Shift the gaze so the mind is disconnected from the source of the cognitive fatigue | *"Collaboration areas along a window line isn't necessarily un-focusing you but is focusing yourself in a different direction and can help relax your brain."* (Cramer & Phillips, 2019) |
| Creates a more interesting environment | Sightlines from different parts of the school foster a spatial sense of curiosity rather than predictability | *"A transparent building allows such a plan to be created with interesting nooks and crannies without sacrificing security."* (Nair & Fielding, 2005) |
| Enables line-of-sight monitoring to adjacent activity spaces | Unobstructed sightlines allow teachers to oversee students' activities | *"The glass doors and paneling allow visibility of students who are working in the 'gallery' outside the classroom."* (Cleveland, etal., 2018) |
| Encourages a sense of belonging to the learning environment | Space designed for communities of teachers and students to support social connections | *"What I really love about this space is my colleagues. I love that I can see them. I feel surrounded. I feel connected. I feel supported."* (Cleveland, etal., 2018) |
| Encourages choice and movement in the learning environment | Variety of learning settings offer students choice regarding which settings best support their activities | *"Excellent lines-of-sight enable movement of students anywhere in the space and they still remain visible."* (Cleveland, etal., 2018) |
| Enhances a variety of learning activities | Break-out spaces and learning commons provide proximity to classrooms and maintain good visual connections | *"Transparency at work. It provides a highly stimulating and exciting place for the students to learn and contains numerous areas outside typical classroom settings for both formal and informal learning."* (Nair & Fielding, 2005) |
| Enhances a sense of safety | Good sightlines so teachers and students are visible | *"The learning environment is open for staff to view others at all times."* (Cleveland, etal., 2018) |
| Enhances light quality | Internal glazing allows natural light to penetrate buildings, such as into learning commons or meeting rooms | *"The transparency that has been built-in helps create a bright, cheerful place that can also be easily supervised."* (Nair & Fielding, 2005) |
| Enhances teachers' use of support spaces | Good visual connections between teacher support spaces and learning environments | *"Our teacher space is directly adjacent to classrooms and is all glass."* (Cleveland, etal., 2018) |

## Challenges to the Learning View – The Issue of Distraction

Alongside the benefits, Nair and Fielding point out a primary challenge to learning views asserting, *"Any discussion of vistas would not be complete without discussing the question of 'distraction.'"* However, the authors also note the few studies done on concentration indicate it may be more about the level of interest inside the classroom, rather than what is happening outside the space. In some agreement regarding interior classroom distraction, a 2013 study in the elementary school environment (Godwin, etal.) looked at on- and off-

task behavior. Off-task behavior in the classroom occurred 29% of the time and a close connection was found between the chosen instructional method (e.g., small group work, large group work, independent study) and whether behaviors were more likely to be on- or off-task. Environmental distraction (i.e., interacting or looking at any object unrelated to the task at hand) accounted for less than 5% of all behaviors.

While Cramer and Phillips did not focus on levels of concentration within the classroom, their study of K12 collaborative learning spaces did reveal a **different spatial story regarding distraction: cultural readiness when utilizing adjacent spaces**. Participants in the study recognized the importance of interior windows and glazing to provide critical line-of-sight to adjacent activity spaces and to build on a culture of collaboration and transparency. Yet, the benefits of the learning view were sometimes paired with a concern for distractions caused by the adjacent use of space: 1) students' off-task activities; 2) students' unmonitored activities; 3) incompatible activities (e.g., collaborative group work alongside quiet activity); 4) kinetic distraction (e.g., elbow room, movement in circulation areas); or, 5) unclear expectations of the shared use of space.

Distraction by interior glazing was called out as a symptom in the Cramer and Phillips study, but the root cause of the spatial concern was embedded in the cultural readiness for the use of adjacent spaces with learning views. An evaluation study of flexibility in learning environments (Cleveland, etal., 2018) lends some credence to the possibility that the challenge of interior windows may be less about distraction and more about a culture of readiness to utilize nearby spaces. In the Cleveland study, readiness for adjacent and visibly connected learning spaces was noted in two ways: 1) a culture of tolerance to some level of distraction; and 2) a culture of understanding in the shared use of connected space:

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**Culture of tolerance to some level of distraction**

- Availability of 'alternative spaces' for either noisy or quiet activities
- 'Comfortable' levels of distraction
- Culture that accepts distraction as a part of curiosity
- Encouraging positive teacher attitudes (mindset) to 'productive noise'
- Teachers' acceptance that productive noise may be generated by learning activities, especially when students are highly engaged in collaborative tasks

**Culture of understanding in the shared use of connected space**

- Aligning teaching and learning activities across the classes or groups sharing a given learning environment
- Coordinating of activities to reduce the impact of large numbers of students moving during class-time
- Establishing shared expectations about reasonable noise levels, including modification in relation to certain forms of activity
- Synchronizing activity across groups/classes using shared spaces
- Team-teaching, with classes doing complementary activities
- Using learning environments for the number of students they were designed for (not overcrowding).

This brief offers a closer look at the dynamics involved in the use of interior windows and glazing. As designers and practitioners work to co-design spaces to support innovative learning, discussions emerge regarding the benefits and challenges of providing students with a desirable "learning view." By addressing issues of cultural readiness, a well-designed space with interior windows and glazing is better poised to become a well-utilized space to support innovative learning strategies. Finally, the brief also highlights the need for more research that looks specifically at the concept of the learning view and environmental distractibility, thus expanding upon Godwin's on- and off-task behavior work to include classrooms with vistas to other interior spaces.

## 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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