



BY DR. AARON AND RICK DAHLGREN  
CENTER FOR TEACHER EFFECTIVENESS  
AND TIME TO TEACH  
<http://www.timetoteach.com>

## The Power of Classroom Ecology: The Science and Some Suggestions for Classroom Use

Classroom ecology is the deliberate placement of people, furnishings, light, sound, and materials so that everything in a room is positioned to decrease interruptions and increase the likelihood that learning takes place. It is not the most important part of a discipline plan, but it is the first matter of business, and it is the one part a teacher can put in place before a single student walks through the door.

### The Science

---

#### 1. Classroom Design Accounts for a Measurable Share of Learning Progress

- **Research:** The Holistic Evidence and Design project at the University of Salford followed 3,766 pupils across 153 classrooms for a full year. Differences in the physical characteristics of those rooms explained 16 percent of the variation in learning progress. Classroom-level design mattered far more than whole-school factors, and many of the highest-impact changes cost little or nothing.

#### 2. Wall Decoration Competes With Instruction, and Students Do Not Get Used to It

- **Research:** Carnegie Mellon researchers taught kindergarteners six science lessons while manipulating only the wall displays. In the heavily decorated condition, children were more distracted, spent more time off task, and showed smaller learning gains. Follow-up work tested whether students simply adapt. Over fifteen weeks in real classrooms, there was no evidence of habituation at all.

#### 3. Air Quality Is an Attention Variable, Not a Facilities Issue

- **Research:** A 2025 study pairing continuous classroom carbon dioxide monitoring with cognitive testing found that higher concentrations were associated with lower scores on measures of attention and working memory. A 2024 study of 322 schools found ventilation rates falling sharply in cold weather, when windows stay shut. A stuffy room in February is an attention problem that looks like a behavior problem.

### Suggestions for Classroom Use

---

- **Aim students at the intended focal point.** Energy flows where the eye goes. Let the instructional objective decide which way students face, not tradition.

- **Clear the teaching wall.** Keep the area around your board or screen free of anything unrelated to the lesson. Do not take good student work down. Move it outside the direct field of vision during instruction.
- **Audit the room from the hardest seat.** Sit where your most distractible student sits and look at what that student sees while you teach. Then decide what moves.
- **Do not teach from the window wall or beside the door.** You cannot win a competition with a playground, and standing near an entrance guarantees interruptions at the worst moment.
- **Find the position where you can see the most.** Locate the spot, usually along a diagonal, that gives you eye contact with every student and a view of the door at the same time.
- **Air out the room on purpose.** Open windows between periods, especially in winter, and move the captivating distractions such as sharpeners and screens away from where you teach.

***"Time spent analyzing and rearranging the people and things in your classroom  
will be time well spent."***

Effective teaching will always matter more than the arrangement of the room. Skilled teachers engage students in drab spaces every day, and no amount of thoughtful design rescues weak instruction. Classroom ecology is not a substitute for skill. It is a multiplier of it, and it is one of the very few multipliers available at no cost, to any teacher, on any afternoon, before the first bell rings.

---

BY DR. AARON AND RICK DAHLGREN  
CENTER FOR TEACHER EFFECTIVENESS  
AND TIME TO TEACH  
<http://www.timetoteach.com>

#### References

Barrett, P., Davies, F., Zhang, Y., & Barrett, L. (2015). The impact of classroom design on pupils' learning. *Building and Environment*, 89, 118-133. • Barrett, P., Treves, A., Shmis, T., Ambasz, D., & Ustinova, M. (2019). *The Impact of School Infrastructure on Learning*. Washington, DC: The World Bank Group. • Fisher, A. V., Godwin, K. E., & Seltman, H. (2014). Visual environment, attention allocation, and learning in young children. *Psychological Science*, 25(7), 1362-1370. • Godwin, K. E., Leroux, A. J., Seltman, H., Scupelli, P., & Fisher, A. V. (2022). Effect of repeated exposure to the visual environment on young children's attention. *Cognitive Science*, 46(2). • Wood, S. G. A., Handy, A. E. E., Roberts, K., & Burridge, H. C. (2024). Assessing classroom ventilation rates using CO2 data from a nationwide study of UK schools. *Developments in the Built Environment*, 19, 100520. • *Journal of Exposure Science and Environmental Epidemiology* (2025). Associations between indoor air exposures and cognitive test scores in classrooms with increased ventilation rates.