Design
Principles to
Set the Stage
for Learning

EHRENKRANTZ ECKSTUT & KUHN ARCHITECTS
6 Design Principles to Set the Stage for Learning

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Like great theaters, the best learning environments inspire incredible journeys, both metaphorical and real. Within these settings, teachers and students readily adapt the environment to create the “sets” and choreograph the on-going “play of learning.”

This theatrical metaphor of stages, sets and plays has arisen from our research into successful classroom environments across the country. This research has sought to identify the long-term fixed attributes of the environment—the “stage”—that foster the continuous change and evolution of the space and the activities within the classroom: the “set.” Within classrooms that range from a Reggio Emilia-inspired early childhood program housed in a 19th century urban school building to an independent secondary school on a hilltop campus, students and teachers have helped us to identify the opportunities that can create great settings for learning.

How can you set the stage for learning? Here are six recommendations:

1. Make the classrooms large enough

The construction cost of classroom square footage is easy to assess, but the impact of those square feet on educational outcomes is harder to determine without understanding how classes really use space. For example, in a comparison of several pre-kindergarten and kindergarten classrooms, including two 940-square-foot Reggio Emilia-inspired classrooms (shown in Figure 1), it became evident that the smaller classrooms could not accommodate the diversity of activity centers that the larger classrooms could. Every space in the smaller classrooms needed to be used for several purposes throughout the day, so these children could not create the same long-term projects that the children in the larger classrooms could.

From this research, we determined that at least 42 useable square feet per student was necessary to create a flexible and diverse pre-K and kindergarten classroom. As educational delivery is increasingly differentiated for older children and students work individually, in small groups and in large groups in the same setting, similarly generous spatial allocations would enable the necessary flexibility to foster positive learning outcomes.

Figure 1: The diversity of activity centers in these two different Reggio Emilia-inspired classrooms helped evaluate the right size for a flexible classroom. Illustration by Abbie Cronin, EE&K Architects.

Figure 2: Opportunities for two- and three-dimensional displays are planned into this high school classroom design. Rendering by Eurilynn Caraballo, Ehrenkrantz Eckstut & Kuhn Architects.
2. Let the walls—and the ceiling—communicate

As a stage can create an entire world, every surface of the classroom can be engaged in the learning process, particularly the walls and even the ceiling and the floor. As Figure 2 illustrates, personalization of the learning environment through two- and three-dimensional displays reinforces the learning process and communicates the values of the learning community. Frequently, however, numerous door openings, storage units, HVAC equipment, electrical devices, grills, wainscots and sometimes even too many windows reduce the amount of “productive” wall space. Classroom designs should ensure that wall surfaces, particularly at the scale of the children, are as unencumbered as possible. The ceiling is also an opportunity for suspending artwork or curtains from a grid (see Figure 3), or even—with proper structural design—for creating kinetic physics experiments.

3. Let the furniture play its part

Stage sets change over time—and in some instances, every day—and stages are designed to readily accommodate these changes. Likewise, in classroom design we need to be careful not to create spaces that are so idiosyncratic that they prevent a process of continuous adaptation by the students and teachers. Avoid too many built-in elements and too many overly small “nooks and crannies.” As the Reggio Emilia-inspired classrooms illustrate, a great variety of spaces to learn can be readily created by the right furniture and other loose objects. In addition to tables and chairs, couches, shelves for educational materials, soft seats, beanbags, and even rugs can define a new place or center. In many ways, the furniture and these other loose objects will communicate the culture of the school by creating great places and opportunities to learn.

4. Plan for acoustical diversity

When classroom activity grows more diverse, there may be times when a little acoustical separation is desirable. These activities might include intensive or private conversation or the use of media with an audio component. In these instances, the use of a physically separate but visually connected space may be useful. These opportunities could be provided by a room within or adjacent to the classroom or by taking advantage of the circulation space outside of the classroom. These spaces can also be shared between classrooms, as Figure 4 illustrates, fostering communication between classes.
5. Respond to the scale of the children

The size of the children affects the appropriateness of the setting in many ways, ranging from the height of window sills to the size of the classroom. Windows enable the students to connect to the larger world, and their sills provide opportunities to further engage the students. For example, the binoculars on the sill in Figure 5 inspire the children to explore the world around them, or elsewhere small “biospheres” enable students to see the hydrologic cycle. Teachers and students can also adjust the scale of the room using plants, branches and a variety of three-dimensional features using a ceiling grid and other opportunities.

6. Create some ambience

No stage would be complete without lighting. Our classrooms should take advantage of the opportunities for plentiful natural light and energy-efficient electric lighting. Each source should be controllable by the teachers and students to suit their activity and avoid glare. Variable “scenes” should be enabled through the lighting controls and shading devices that can “wash” the walls or create the appropriate illumination for a particular activity as desired. Task lighting can also enhance the ambience and flexibility of the room.

These six general principles can help designers ensure the creation of classrooms that foster great performances and positive educational outcomes.

Figure 5: The use of a window sill in a historic building encourages students to explore the world outside of their classroom.

Furniture defines distinct activity centers and horizontal surfaces create opportunities to engage the students.

Even “built-in” elements should enable the teachers and students to create new learning opportunities. For example, the shelving units below the windows in this classroom have casters to allow them to be easily reconfigured.

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The public spaces of a school can also be activated as settings for learning as this “neighborhood” of classrooms organized around a shared learning “commons.”