

Learning Modalities and Space

By Jason G. Boone, REFP

As designers, teachers and administrators we intuitively know that different students learn differently, but we rarely intentionally create learning environments for specific learning modalities – especially within traditionally academic spaces.

As planners, designers and educators, we are often content to let “alternative” learning occur in art, music and physical education spaces while defaulting to the standard paradigm for classrooms, which, at best, accidentally and superficially addresses the needs of learners. The REFP workshop presented in September of 2009 at the CEFPI Annual World Conference and Expo provided teachers, administrators and design professionals an opportunity to learn and discuss specific planning tactics and architectural strategies that support the unique characteristics of each learning modality. The article that follows summarizes the content and highlights the outcomes of that workshop.

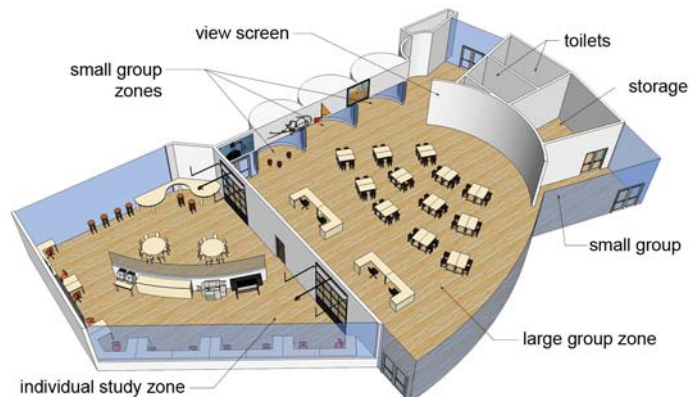
As a workshop related to how people learn, it was important to model the content of the workshop in the presentation format. Activities were crafted to reach each of the three learning modalities being discussed: Visual, Auditory and Kinesthetic. They included reading text, viewing graphics and making physical models – each with a high degree of physical movement and dynamic participation. The specifics of these activities are discussed in the Pragmatic Example and Official Outcomes section below.

Planning Basics

Before choosing which architectural strategies are appropriate for the learners in a project, there are several planning tactics that are appropriate for all learners. There are, in fact, too many to discuss in detail in an article of this length, but there are two that warrant brief mention. First, carefully consider the building organizational strategy. Plan to permit multiple organizational patterns over the course of the building lifespan. Potential organizational patterns include: grade level, departmental, thematic, developmental, schools-within-schools, learning modality groupings and others not yet imagined. Doing so allows the building to adapt to the continually varying types of learners who occupy the school and provides

the school leadership with the greatest organizational agility over the lifespan of the school.

Second, plan for a variety of sized and shaped spaces. We know that the richest educational experiences employ a wide range of student groupings from large groups to small groups to individual study. Consider how spaces can accommodate these groupings at every organizational level: school-wide, grade level, learning cluster and individual classroom. The most effective concepts provide these spaces intentionally rather than accidentally through the simple rearrangement of furnishings. Adopting this tactic allows instructional staff, aides, and administrators the greatest pedagogical agility, the ability to craft instructional strategies for a variety of



learners simultaneously rather than forcing them to utilize only one instructional strategy for all learners.



Visual Learners

With these planning basics and general good planning practices serving as the foundation for design, there are architectural strategies and design elements that can be deployed to benefit specific types of learners. Visual learners, for example, process information primarily by sight. They tend to prefer visual demonstrations, recognize words by sight, often doodle and stare into space.

Architecturally, it is important to provide a visually rich educational experience. Strategies include:

- **Extensive horizontal surface area** – for creating and viewing images. Rather than the traditional tablet arm-chair desks, consider providing tables with enough surface area to view and create graphics, utilize personal viewing technology, and view multiple items at one time.
- **Vertical writing and “pin-up” surfaces largely for student use** – These zones tend to work best when sized for small-group use and repeated in several areas. Consider pairing them with upholstered stools or other highly mobile furnishings to distinguish their experience from whole group activities.
- **Thread spaces together visually** – use thoughtful transparency, translucency, and opacity to visually connect related and adjacent spaces in a meaningful way.

- **Articulate focal length** – provide a variety of focal distances including near, as in reading a book or viewing a computer screen; mid-range, as in viewing a projection screen, marker board or other large group viewing area; and long-range, as in viewing an interior vista across a large space or to distant features in the exterior environment.

We created a theoretical example where we imagined a learning zone dedicated to visual learners to illustrate architectural strategies for visual learners. It was a suite of spaces that was zoned for large group, small group and individual study activities within the “classroom” itself. The large group zone was shaped to resemble an eye in plan and both served to focus students’ visual senses on a large parabolic view screen as well as represent the learning modality in the architectural experience. Off to one side were parabolic alcoves glazed with writable surfaces. They were intended to allow visual transparency between the learning zone and the adjacent spaces and provide vertical student-owned surfaces for small group work. Finally, in a semi-isolated area, there were a series of individual student workstations, each large enough to engage visually with technology, printed text, artwork or all these elements simultaneously.

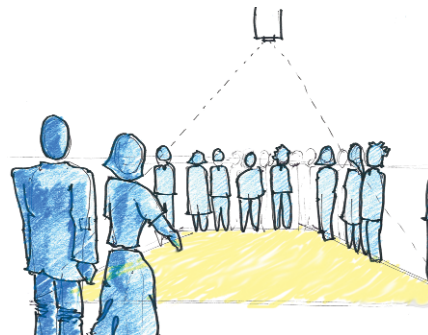


Auditory Learners

Auditory learners, as the label suggests, process information large-

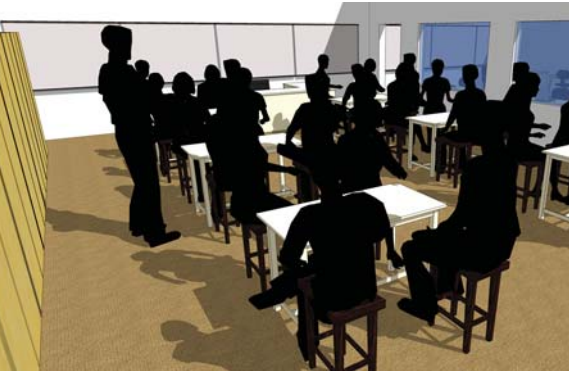
ly through their sense of hearing. What is interesting about their process, however, is that it often involves vocalization. These students like to listen, but they can not wait to talk. Even when studying alone, they tend to make sub-vocalizations. Architecturally, it is critical to consider the acoustic qualities of a learning space, but also important to provide opportunities to communicate with one another. Specific strategies include:

- **Choose soft and highly mobile furnishings** – to promote student-directed small group discussions and dampen the discussion noise.
- **Make mobile, vertical pin-up surfaces from fabric or other absorptive materials** – to encircle each ad-hoc small group discussion area.
- **Acoustically isolate individual study areas** – so that students listening on headphones to content can make sub-vocalizations without disturbing others.
- Spaces with different acoustical characteristics are appropriate.
- Noisy spaces are okay and should even be encouraged.
- Serene spaces are necessary to provide shelter from noise on occasion.
- The architecture should express these acoustical qualities in the furnishings and finishes.



Kinesthetic Learners

These are tactile learners. They process information by using their



bodies, their sense of touch and through movement. When forced to sit still they often tap their fingers on the desk, find reasons to move about, and quickly wrinkle their clothing. Architecturally, it is most important to recognize these characteristics and provide places to move and ways to interact with content. Strategies include:

- **Alter the way large group presentations and demonstrations are conducted** – consider projecting on the floor while students stand around,
- **Provide open floor space** – for students to “build,” experiment, or simply define their learning location for themselves,
- **Utilize adjustable height furnishings** – so that students can interact with content while seated or standing, and
- **Reconsider the ground plane** – if at all possible provide the opportunity for learners to change elevation.



During the modeling portion of the workshop, the group responsible for kinesthetic learners chose to leverage the room in which we were meeting as a demonstration of using what is available rather than make a scale model. The other participants were asked to perform a round-robin series of tasks demonstrating what they had learned in the workshop, each at a different location and each requiring a different means of interacting with the room. It was a great statement about what can be accomplished when designers and educators are informed about the learning process, even within existing spaces and without great expense.

Pragmatic Example and Official Outcomes

As was mentioned previously, it was important to model the content of the workshop in its presentation format. The activities conducted were aimed at each of the three modalities. First, content was presented in graphic and written forms. Two local administrators presented information related to the qualities and characteristics of each learning modality while participants viewed both a PowerPoint presentation and boards filled with graphics and text posted vertically around the room.

Second, we invited small groups to design and make a physical model of a learning environment suited for a specific learning modality as a means of modeling kinesthetic learning. This was, by far the most engaging of the activities. Participants crafted their models from not only the materials we provided but also from local materials gathered within and just outside the conference hotel. The final products were presented on the floor and design characteristics were recorded on flipcharts. Interestingly, several architectural strategies were mentioned related to all three learning modalities and should be interpreted as important to all learners.



These strategies included:

- **Make learning visible** – leverage interior glazing and transparency to allow learning to be visible from outside the learning environment.
- **Provide multiple sizes of spaces** – intentionally create “inbetweenie” spaces, large group and small group spaces for learning; go beyond the simple one-size fits all, one-size does all classroom paradigm.
- **Provide access to the exterior environment** – not only visually, but physically; leverage site characteristics as part of the learning process.
- **Allow for movement** – design spaces that encourage learner movement, horizontally and vertically rather than stationary and pointed in a single direction.

And finally, we held a short *pecha kucha* to model auditory learning. A *pecha kucha* is a presentation format intended to keep the speaker honest and moving. They are designed to be a fixed number of slides within a fixed timeframe. One of the presentations was a vocational school project whose design was derived in part from the content of the workshop.

Three learning areas were highlighted as examples of learning environments slanted in the direction of specific learners. The first environment was the Criminal Justice Lab, a suite of spaces intended for the study of law and law enforcement. The suite includes

large group, small group and individual study zones, but was included because it served as a model for auditory learners. One portion of the suite is dedicated to mock trials where students are expected to demonstrate their speaking and listening skills. Another zone is dedicated to small group discussions with limited horizontal surface for spreading out of materials. Finally, the individual study zone is an enclosed room that acoustically isolates it from the remaining spaces.



The second environment was the Graphic Communications Lab and served as the example for visual learners. This suite of spaces is essentially an art room with production facilities. It is also organized into large group, small group and individual study zones, but each are articulated for visual rather than other types of learners. First, the entire environment is related to the creation, review and production of images in all their forms. Each zone



is rich with extensive horizontal and vertical surfaces. And, with the exception of the darkroom, every zone has a high degree of visual transparency into the adjacent spaces.

The final environment presented was the Robotics Lab, which served as the example for kinesthetic learning. As with the other two, it is zoned into large group, small group and individual study, but these areas manifest themselves slightly differently than the other two. Unlike the previous examples, the Robotics Lab provides for more student movement than the others. There is extensive open floor space, fewer furnishings and activity centers are spread out – design, production and assembly areas all separate – to encourage the flow of students from one to the next.

Conclusion

Different students learn differently. Visual learners process infor-

mation primarily through sight. Auditory learners process information primarily through sound (and speech). Kinesthetic learners process information through interaction with their body and through movement. The educational experience of these learners can be greatly enhanced when educators, policy makers and design professionals recognize their differing needs and intentionally craft environments with those needs in mind. As the photographs taken over the course of the workshop suggest, participants were excited to be able to move about, contribute in a meaningful way to the workshop and learn in a way that suited them best. And if nothing else, this is a worthy goal for all teaching and learning spaces. ■

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