Flipping Classrooms

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How flipping classrooms will alter classroom design, furnishings and technology to help students learn more.

Chances are, you have heard about flipping classrooms. The concept is generating a lot of buzz. The flipped classroom idea means doing homework-type projects and assignments during class time, and taking classroom presentations home to watch in the evening.

It is an ingenious idea. Students need a teacher most when they are doing homework and run into difficulties. Students can play recorded class presentations at home alone or with a study partner or even a parent in the evening. Recorded presentations are better than live presentations because students can pause the presentation and run it back to review difficult points. A student might do that a couple times, still fail to understand and write down a question to ask in class the next day.

Observers say these presentations typically take the form of short five-minute video or audio presentations. Students might be asked to view two or three presentations per night.

"Presentations may be lectures,PowerPoint presentations, music,graphics — any way the instructor wants to share a concept," says Jim Brady, AIA, CEFP, an architect and educational facility planner based in Austin, Texas. "Students can view or listen to these presentations wherever they are most comfortable — lying on the bed, sitting at a desk, even walking outside. They can listen in bits and pieces.

"In school the next day, students will apply the concept from the presentation, but with others, not in isolation. The teacher may organize small groups or large groups. The point is that a flipped classroom is student centered, and lots of teaching models are student centered."

What does research say about the effectiveness of flipped classrooms? Not much.

"To date, there's no scientific research base to indicate exactly how well flipped classrooms work," says Susan M. Rundle, president of Florence, Ala.-based Performance Concepts International, a consulting and training firm that designs programs to optimize learning and improve job performance. "Some teachers who have implemented the flipped model indicate they have observed improved attitudes and test scores."

Formal research will come eventually. Right now, the idea is too new.

Learning Styles

But there may be another way to evaluate how flipped classrooms work. A traditional classroom typically focuses on one method of learning: the teacher presents, while students sit quietly and listen.

Research shows that only 12 percent of students are auditory learners. That suggests that 88 percent of students will not retain as much as they should from a classroom presentation.

There are other forms of perception students use to learn. Forty percent of students learn visually. Tactile learners (30 percent) gather concepts by touching, moving and doing.

According to the Dunn and Dunn Learning Style Model, one of the

most widely used models, every individual has a unique learning style, a method of acquiring, processing, using and retaining knowledge. The model contains 21 learning style variables organized into five categories;

- environmental,
- emotional,
- sociological,
- physiological and
- psychological.

Many of the variables have implications for school architecture. "Learning styles are directly connected to how one learns and the space in which the learning takes place," says Rundle. "While some students may learn best in a traditional classroom environment, many do not.

"Asking students to passively sit and attempt to absorb the information being heard is the fastest way to demotivate many students."

Alternatively, catering to individual learning styles can motivate students. Teachers can do this. So can the students themselves.

What about research? Decades of research support the effectiveness of addressing individual learning styles in class.

Catering to Learning Styles

School architects and interior designers can also cater to learning styles. "Think of learning styles as a roadmap to school and classroom design," advises Rundle.

Consider the variables in the Dunn and Dunn environmental category: light, sound, temperature and seating design.

"Seventy percent of the population are affected by light," Rundle

says. "Some need bright light; some need low light. What's more, light isn't just light. Fluorescent tubes make a sound that I don't like. Some students see a glare from a cool fluorescent light, and it prevents them from concentrating."

Sound affects students. Some like a little music or even noise; others can't concentrate unless it's quiet. Temperature too: students with different learning styles prefer different temperatures.

What kinds of seating do students with different learning styles want? Research suggests that 40 percent of the population learns best in informal settings — not the traditional setting of desks in rows in a classroom. These students want to sit or lie on the floor or on some kind of soft seating. Some want to move around, too. It relaxes them and makes them more open to processing information into knowledge.

Psychology and Design

Architects and designers can easily imagine design and furnishing possibilities while thinking about the Dunn and Dunn environmental learning style variables of light, sound, temperature and seating.

Variables in other Dunn and Dunn strands can provide design guidance, too, although it may take some digging to get to the design implications.

Dunn and Dunn's psychological strand, for instance, includes analytic and global learning styles.

Analytic learners process information best when it arrives in a logical step-by-step sequence that adds up to the concept. By contrast, global learners want the concept first. Then they fill in

the details.

Each has a study preference. "Analytics tend to prefer learning in quiet, well-lit, formal settings," write Rita Dunn, Ed.D. and Karen Burke, Ed.D. in "Learning Style: The Clue to YOU," a manual about the Dunn and Dunn Learning Style Model. "Global students, on the other hand, prefer subtle distractions while they learn. They often concentrate best with background sound (music or conversation), soft lighting, informal and comfortable seating arrangements."

The Dunn and Dunn model has teased information about classroom design out of students that prefer analytic and global learning styles over the years.

Sociological Variables

Dunn and Dunn's sociological variables offer more design ideas. In this strand, the model notes that some students learn best while working alone. Some like to work in pairs while others want to be with their peers or a group. Some want to be taught by an authority figure, while others want to engage in an activity that gets the point of the lesson across.

Clearly, an understanding of the Dunn and Dunn Learning Style Model can help school architects and interior designers think about new ways to design and furnish classrooms.

The same is true of other learning models. "Learning styles encompass a variety of concepts from Howard Gardner's Multiple Intelligences to the Dunn and Dunn Model," says Rundle. "With over 30 models available, learning styles can tell architects quite a bit about school design."

Matching architecture and interior design to learning styles

Perhaps the single most important design concept involves flexibility. Students need control over the lighting they use, the noise level and other environmental factors. All will want different sets of environmental variables.

At one end of a classroom, a designer might provide a quiet study nook with lighting on a dimmer and a set of headphones for those that want to listen to music. The idea is to enable students to find a comfortable place for individual study.

Many learning style variables suggest classrooms designed to support large and small groups as well as individual study. "Furniture is critical to this," says Brady. "Grouping and regrouping students will now become a part of the daily routine. So you will need flexible space with moveable furniture and chairs.

"Integrated, single-piece desks and chairs are going away. Lightweight tables and chairs are replacing them."

In existing schools, furniture is the key to enabling space to flex. Brady points to tables that stack up in a corner, leaving a large space in the center of the room.

Overall, a flipped, collaborative classroom will require more kinds of space, continues Brady. Since districts can't afford larger schools, designers will have to figure out how to use space differently.

Expanding Space With Technology

Today's technology can expand a classroom to the size of the entire world. "With a textbook, you can read about a historical tornado and look at pictures," Brady says. "With a tablet or smartphone, you can see a horrific tornado tearing up a neighborhood in Oklahoma. As a collaborative group, a class can

figure out an appropriate social response."

Technology is also critical for viewing videos of class presentations at home in the evening, continues Brady. Students must have access to a smartphone, tablet or a laptop or desktop computer.

If you are thinking about flipping classroom instruction in your school, take the time to investigate learning styles and how teaching methods can cater to them. Think about classroom furnishings. Traditional rows of desks may work, but tables, chairs and some soft seating may work better.

Figure out a technology plan. Every student needs a way to view video and audio presentations at home. That requires a smartphone, a tablet or a computer for every student at home and preferably in class, as well.

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