TEACHING SPACES:
JANUARY 2015
## Educating the Net Gen

*(Educause - Brown, 2005)*

<table>
<thead>
<tr>
<th>Net Gen Trait</th>
<th>Learning Theory Principles</th>
<th>Learning Space Application</th>
<th>IT Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group activity oriented</td>
<td>Collaborative, cooperative, supportive</td>
<td>Small-group work spaces</td>
<td>IM chat; virtual whiteboards; screen sharing</td>
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<tr>
<td>Goal and achievement oriented</td>
<td>Metacognition; formative assessment</td>
<td>Access to tutors, consultants, and faculty in the learning space</td>
<td>Online formative quizzes; e-portfolios</td>
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<tr>
<td>Multitaskers</td>
<td>Active</td>
<td>Table space for a variety of tools</td>
<td>Wireless</td>
</tr>
<tr>
<td>Experimental; trial-and-error learners</td>
<td>Multiple learning paths</td>
<td>Integrated lab facilities</td>
<td>Applications for analysis and research</td>
</tr>
<tr>
<td>Heavily reliant on network access</td>
<td>Multiple learning resources</td>
<td>IT highly integrated into all aspects of learning spaces</td>
<td>IT infrastructure that fully supports learning space functions</td>
</tr>
<tr>
<td>Pragmatic and inductive</td>
<td>Encouraging of discovery</td>
<td>Availability of labs, equipment, and access to primary resources</td>
<td>Availability of analysis and presentation applications</td>
</tr>
<tr>
<td>Ethnically diverse</td>
<td>Engagement of preconceptions</td>
<td>Accessible facilities</td>
<td>Accessible online resources</td>
</tr>
<tr>
<td>Visual</td>
<td>Environmental factors; importance of culture and group aspects of learners</td>
<td>Shared screens (either projector or LCD); availability of printing</td>
<td>Image databases; media editing programs</td>
</tr>
<tr>
<td>Interactive</td>
<td>Compelling and challenging material</td>
<td>Workgroup facilitation; access to experts</td>
<td>Variety of resources; no “one size fits all”</td>
</tr>
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</table>
learning setting principles - 02 group settings
... describes types of spaces and spatial qualities that support groups. These should have movable furniture so that the spatial organisation is learner-controlled. These are for small group collaborative and cooperative learning activities.

group learning space

**space**
Individual or team spaces for staff that has adjacent material preparation area and meeting space.

**pedagogy**
Encourages team teaching, mentoring of other faculty, integrated planning, and informal discussions.

**size**
20-25 sqm.

collaboration incubator

**space**
Idea generation space, team meeting space, access to technology and other resources and display space for models and ideas.

**pedagogy**
Support creativity, idea generation, teamwork and prototyping of concepts. Encourages involvement of local employers in the development of projects.

**size**
20 sqm.
Document Camera

What is a Document Camera (Visualisers)?

- They are a camera mounted on an arm that lets you project objects you put on the document camera.
- They replaced overhead projectors.
- They are connected to projectors in classrooms.
- They allow educators to write on a sheet of paper and have this projected or they can be used to project transparencies.
- They allow educators to display a two or three-dimensional object including documents and books.
- They can be used to zoom in and out on objects with the zoom buttons or to view objects from different angles by moving an object.

What can a Document Camera be used for?

- Displaying art work
- Dictionary work
- Flash cards
- Map skills
- Showing small live animals (mealworm/small insects)
- Displaying books, text
- Group readings of plays, books etc
- Investigate fossils – can zoom in for all to see
- Demonstrate sign language and finger spelling
- Examine the parts of a camera or other mechanical or technical equipment
- Small science tests
- Cook/prepare recipes in cooking classes
- Sharing dioramas
- Dissection of animals or parts of animals
- Checking student work and discussing as group.
A study by the National Training Laboratories found that the more active the teaching and learning methods, the higher the retention rates.—Adapted from The Learning Triangle: National Training Laboratories © mindServeGroup 2005

What We Know

Classroom design influences levels of interaction and engagement. Engagement and active learning improve retention.

A study from the National Training Laboratories in 2000 found that only about 5 percent of the information delivered through lecture was retained. Compare that with retention rates at 50 percent for discussion group and 70 percent for practice by doing. Even higher, at 80 percent, was retention by students teaching others.

Greek philosopher Sophocles already knew this in the fifth century B.C. when he wrote, “One must learn by doing the thing, for though you think you know it, you have no certainty until you try.” The wisdom of that ancient perspective was reflected in research Herman Miller recently conducted at Estrella Mountain Community College (EMCC). Sixty-four percent of students surveyed said that “learning by doing” was their preferred learning style.

Alexander Astin, professor emeritus at University of California, Los Angeles, notes the shift in teaching that an active learning classroom requires. Teachers focus less on what they do and more on what the student does. Teachers are aware of how motivated the student is and how much time and energy the student devotes to the learning process. “Student involvement,” says Astin, “not teaching resources or techniques, becomes the concern of the instructor.”

Astin goes on to note that motivation then comes into play. Motivating and involving students becomes the concern of the teacher. This suggests a significant shift from traditional pedagogical outcomes.

Classroom design can help to develop skills for life and work beyond the classroom. Self-directed learning and collaborative problem solving are essential skills for success.
Responses from Estrella Mountain Community College faculty and staff leave little doubt that learning studios offer more positive environments for learning and teaching than traditional classrooms do.

**Therefore**

The goal of classroom design is to enrich academic, psychological, and sociological growth. The design of such spaces should be intentionally serendipitous and avoid prescriptive and restrictive behaviors, for both teachers and students. The design of learning spaces should increase levels of engagement, foster active learning and teaching, and support the learning goals of higher education institutions.

**Challenge**

If active and collaborative learning and teaching is more effective than lecture methods and individually based learning, why haven’t classroom environments changed to support them? If instructor-directed, competitive environments result in lower retention scores and higher attrition, why do students continue to sit in immovable desks—“soldiers in a row”, as one community college professor observed—rather than organized in groups at tables or sitting in a circular arrangement? Why haven’t classroom spaces evolved to support kinetic teaching and dynamic learning?

The difficulty in answering these questions lies in the fact that institutions must align many different elements. They encompass researching learning and teaching methods and cultural and sociological trends, understanding the needs of teachers, students, and administrators, and determining how the shared goals of these constituencies can best be realized in the learning spaces throughout a campus.

<table>
<thead>
<tr>
<th></th>
<th><strong>Traditional Classroom</strong></th>
<th><strong>Learning Studio</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>Students</strong></td>
<td>Boring</td>
<td>Inviting</td>
</tr>
<tr>
<td></td>
<td>Dry</td>
<td>Welcoming</td>
</tr>
<tr>
<td></td>
<td>Dour</td>
<td>Comfortable</td>
</tr>
<tr>
<td></td>
<td>Oppressive</td>
<td>Open</td>
</tr>
<tr>
<td></td>
<td>Restrictive</td>
<td>Clean</td>
</tr>
<tr>
<td></td>
<td>Intimidating</td>
<td>Fresh</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Relaxing</td>
</tr>
<tr>
<td><strong>Faculty</strong></td>
<td>Bulky Furniture</td>
<td>Interactive</td>
</tr>
<tr>
<td></td>
<td>Long Tables</td>
<td>Modern</td>
</tr>
<tr>
<td></td>
<td>Bolted to the Floor</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Institutional</td>
<td>More Aesthetic</td>
</tr>
<tr>
<td></td>
<td>“Soldiers in a Row”</td>
<td>Easy to Move Around</td>
</tr>
<tr>
<td></td>
<td>Inefficient</td>
<td>Better for Group Work</td>
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<tr>
<td></td>
<td></td>
<td>Conducive to Learning</td>
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Several months after the learning studios were in full use, Herman Miller surveyed the EMCC faculty and students who taught and learned in these spaces. Herman Miller was interested in comparing and contrasting traditional classrooms with learning studios. Research methods included focus groups with students and faculty, interviews with faculty, and interviews with administrators. An online quantitative survey of students and faculty was also conducted.

Having experienced the learning studios, students and faculty had overwhelmingly positive responses. Faculty, in particular, expressed an appreciation for the learning studios as a paradigm that better served the possibilities of experiential, constructivist learning.

**Levels of interaction and engagement**

The intentional flexibility of learning studios supports multiple teaching and learning styles. Without a prescriptive design, teachers are free to lecture or lead discussions or facilitate group or hands-on learning.

Mobile Intersect portfolio tables and Caper chairs make it easy for students and teachers to arrange the room to fit the purpose or preference. A circle of chairs for a full-class discussion or six tables for small group projects can be easily configured within the same space to support varied learning and teaching styles.

Intersect portfolio mobile display products can move to wherever they are needed. Larger whiteboards can quickly divide a single larger space into smaller group areas.

Wireless access throughout the spaces frees students to move, along with laptops, to where they need or want to be. Replacing desktop computers with laptops has increased levels of engagement. Students interact frequently and are more open to share information, in large part because they are not tethered to or hidden behind a computer monitor.

Because the studios foster direct and conversational relationships, they help avoid the passivity and isolation associated with traditional classrooms.

**Expectations of participation and accountability**

The dynamic and adaptable nature of learning studios adds an element of surprise. The unexpected opportunities the mobility of the space creates also translate to a fresh outlook on what the class might become on any given day. Contrast this with the predictability and immobility of a traditional desks-in-row classroom.

Faculty at EMCC responded favorably to the ways learning studios foster independence through group activity. Ample room to accommodate break-out groups, flexibility to reconfigure the furniture and space, and the ability to display information were all cited in follow-up research. Faculty also rated highly the ability of the space to teach students to take learning into their own hands. Teachers and students alike have a hand in shaping the learning environment.

EMCC’s Roger Yohe explores with faculty how they can nurture engagement and build accountability among students. “We need to focus less on presentations and more on student
When surveyed, students commented how the design of the space influenced self-directed learning by

- allowing greater involvement in group activities,
- helping create an environment that was more supportive of speaking up and participating in discussions, and
- assisting in technology access to support research and dynamic learning activities.

**Interaction through formal and informal means**

For many EMCC students, opportunities to interact with faculty happen primarily in the classroom. Commuting and demands of work and home mean that many students attend class and then leave campus, so the faculty/student interactions that occur within the learning studios are essential.

Traditional classroom configurations create tacit hierarchies in which the vocal and confident students sit forward and receive more individual attention while quiet or timid students find seats in the back and avoid interaction with teachers and other students. Students said they were more comfortable talking because the learning-studio arrangements were informal. Conversations flowed more easily when the classroom was more collaborative and when teachers moved around freely.

Design considerations were also made for one-to-one opportunities between faculty and students. Celeste soft seating, Covey stools, and Resolve stand-up work surfaces create areas for individual conversations and smaller sessions.

**Psychological and physical comfort**

As with many community colleges, EMCC has a large percentage of high-risk students. It includes a population of first-generation college goers, many of whom come with little support from family. A number of students also have little formal educational experience or are enrolling after years away from formal education. Creating an environment that welcomes, invites, and promotes a sense of well-being can help the difficult transition and influence successful outcomes.

Students’ survey responses indicate that the atmosphere of the learning studios dovetails with their expectations for higher education. The furnishings and environment communicated to them a level of professionalism, trust, and value that traditional classrooms did not. The impression they received: We are respected and valued by the college. Students described learning studios as “welcoming” and “relaxing.” With the challenges community colleges face with attrition, these positive impressions may help decrease drop-out rates.

Physical comfort is also important. Products within the learning studios are ergonomically designed to provide comfort and support. For example, students commented that Caper chairs were comfortable and didn’t strain their backs, even during two-hour classes.

The open design of learning studios creates a more comfortable ambiance. Students felt they could spread out their belongings and move their chairs. Room configurations varied as well, with display tools used throughout the space. Students didn’t have to strain to see things or