



# Scaling Up the Dynamic Classroom: Outfitting and Supporting a High-Tech and High-Maintenance Team-Learning Classroom

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## The Team Learning Classroom

In August of 2005, the Stanford University School of Medicine opened the Team Learning Classroom ("TLC") - **designed to support a variety of team-based learning, case-style, and collaborative sessions.**



Original M112 lecture hall

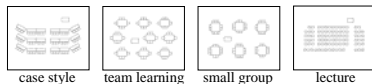


Artist's rendition of how we imagined the new TLC might look

The M112 TLC has:

- four available table configurations
- dual LCD projectors
- podium tablet computer
- digital document camera
- audience polling
- student laptops with desktop sharing

### TLC Room Configurations



case style team learning small group lecture

This project, conceptualized in 2002, was the third of the school's facilities upgrades with the goal of helping faculty become familiar with the new types of teaching available in our upcoming Learning and Knowledge Center (2009). We wanted this space to support our faculty who have begun to incorporate the use of "Team-Based Learning" into their regular class sessions. Team-based learning is similar to problem-based learning in that groups of students work together to solve a series of challenges with varying difficulty. However, **team-based learning is more scalable** because one instructor facilitates many groups, students are held **accountable** for course content through Readiness Assurance Tests, and peers and faculty give timely **feedback** to all teams during the session.

## A Typical Day

8:00 A.M. EdTech staff arrange tables and podium to case-style configuration



9:00 A.M. Human Health and Disease lectures  
12:00 P.M. Latin American Medical Student association lunch meeting  
1:00 P.M. EdTech staff arrange tables and podium to team learning configuration



1:15 P.M. Practice of Medicine case discussions in small groups  
5:00 P.M. EdTech staff arrange tables and podium to case-style configuration  
6:00 P.M. OBGYN course lectures

## Technologies for Team Learning

**Example: Practice of Medicine Patient Case**

1:15 P.M. Audience polling for Readiness Assurance Test (RAT) on essential concepts  
2:00 P.M. Facilitator introduces case using PowerPoint and handout on document camera  
2:10 P.M. Teams of four students use classroom laptops to download and fill out case discussion questions.  
2:25 P.M. Scribe from each team presents findings wirelessly using Apple Remote Desktop. Facilitator writes main ideas from discussion on tablet computer.

## Scheduling Data

Room scheduling data from September 2, 2005 through March 23, 2006 shows:

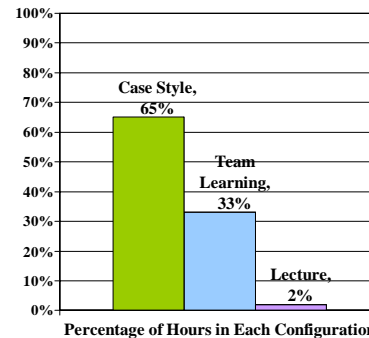
### Activities

- 818 hours in 378 activities
- **32 hours a week** in 15 activities
- in most recent quarter, **M112 used 40% more than similar-sized M114 lecture hall**

### Equipment Usage

- 48 audience polling activities (13%)
- 29 laptop activities (8%)

### M112 Room Configuration Usage



### EdTech Staff Changed Room Configuration 148 times in 24 weeks

- 62 reconfigurations took place in the evening or before the first morning class
- 86 reconfigurations happened quickly during the day between activities



Two EdTech staff can reconfigure M112 from Case Style to Team Learning in **15 minutes**

## User Feedback

**Students:** students gave a **standing ovation** for the new M112 classroom at a feedback session. They like M112 for larger group sessions because it's more **intimate** and **less intimidating** than a lecture hall. They appreciate **tables for laptops**.

**Team Learning Facilitator:** "Other faculty like [M112] hands-down over M104, M106 [lecture halls] It's allowed us to do **team learning as we'd envisioned**. I love M112 because it's a flat floor. [Presentation technologies] liven up the **learning climate** and engages them. I'd have students' tables closer to whiteboards. I'd like to bring more intimacy to a group of 4 or 5 with two trapezoidal tables. What would help the most is to get faculty into the role of learners and have them experience the benefits of the proper use of the technology. I really want to figure out how to use this because I've seen how this can be a **very powerful teaching tool**. The sight lines aren't that big of a problem."

**Basic Sciences Lecturer:** "You got a **lot of mileage out of the renovations**. Students have to be closer now so it makes it more **intimate**. In [a large lecture hall] 2/3 of students are in the back and there's a vacuum. There is no consensus on more effective ways of teaching. The M112 model is not as necessary for a basic sciences or grad student [lecture] course. I don't use the technology to the maximum but **for my purposes it works fine**."

## Observations

## Recommendations

Staff **reconfigure the room more than once a day**- much more frequently than we expected- and reconfigurations must happen quickly

**Light furniture**, easy power plugs, durable floors

Stick with **rectangular tables** because they're easiest to reconfigure and can be placed in any direction

Make it easy to unlock table wheels or use casters

**Classes run over** into the setup "buffer time" we schedule for reconfiguration

Enforce accurate reservation times and **block off extra time** for EdTech staff to reconfigure room

After-hours activities sometimes change room configurations themselves, but they cannot move the podium without EdTech staff and cannot replace resources like laptops or polling

Make podium more mobile for non-technical staff  
Determine how courses can use resources like laptops for an **after-hours session**

Lecture-style sessions are scheduled in M112 and require **videotaping**

Assume videotaping will happen in a case-style room  
Videotaping of team learning sessions is low-priority

Room and resource **requests changed often**, and sometimes at the last minute

Use **electronic schedules** for door signs and staff calendars so info on changes distributes quickly

One course's groups of 6 students felt too spread out at 10-seat table configurations, so EdTech **added a new smaller team learning configuration**

Offer templates for configurations that will accommodate most groups, but create process for adding new configurations

**Parties, luncheons, and group meetings** are frequently scheduled in M112 because of the tables, location, and comfort of the space

Write policies to give **priority to the most appropriate** uses of the space  
Include a clear food and drink policy and big trash cans.

**Whiteboards are rarely used**- one lecturer took notes for student groups on their whiteboards

Place tables and **whiteboards closer** and encourage use of whiteboards for documenting group activity

Lecturers used the smart panel on the podium, never the one on the wall

Place **smart panels in one obvious and convenient location**

Even with outlets all over the floor, **cables** are still plugged into walls and create **tripping hazard**

Put more power outlets on the floor and make them easy to access

**Technologies must be reliable** to help faculty trust them and build lectures for polling, tablet, or laptops.

Establish a **checklist** for daily maintenance and hire students in that course to **assist at podium**

**Dual-screen used** for presentation on one screen, activity on other

Use two projectors with unique switchers.