Transforming the Classroom Experience @ Stanford’s Wallenberg Hall 2002–2009

Menko Johnson
Stanford Center for Innovations in Learning
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Topics for Discussion

Revolution of Higher Education today

Wallenberg Hall learning environments

Experiences and findings to date
Change

Society changes rapidly

Education often does not
New Faculty
What is missing?

Pedagogy:

the **art** or science of being a teacher. The term generally refers to **strategies of instruction**, or a style of instruction.
Innovative pedagogies rely upon

Multiple activities taking place in same physical learning space

Access to tools, information to create engaging activities

Support for experimentation & risk-taking
Typical Stanford Classroom

Lacks flexibility

Low level of technology available to faculty

Faculty aren’t supported or rewarded when experimenting

Traditional faculty development not meeting needs
Why Build Wallenberg Hall?

Nature of learning is changing

Facilitate new teaching pedagogies

Faculty experimentation with technology

Laboratory classrooms
Pedagogical Foundations

No longer simply a place to “listen and learn”

Students assemble knowledge through problem-solving & engagement

Change the nature of how we teach and prepare students

Facilitate 2-way information exchange between students and faculty
Shift in Physical Design

Lecture hall: focus on information delivery

Flexible Classroom built for interactivity
Shift in Pedagogy

Information-oriented
Faculty as Performer, 1-person “show”
Student as Observer | Passive Learning

Process/Task oriented
Faculty as Facilitator
Student as Participant | Active Learning
Human Challenges

Change requires **risk**

Provide **safe environment** with scaffolding

**Rethink** traditional faculty development

**Empower** faculty & students in the learning experience
The “Millennial” Faculty Member

Required to have expertise in **Content**, **Pedagogy** and **Technology**

Intersection represents new types knowledge and an expertise beyond traditional teaching

From TPACK: tpck.org or Mishra & Koehler, 2006
What Does Innovation Look Like?

Innovative spaces inspire change

Specialized support to enable change

Creating Community of Innovators

1. Increase Efficiency Effectiveness
2. Extend Existing Pedagogy
3. Transform Course

Types of Faculty Change
Visual Tour of Wallenberg Hall
Lobby space for gathering before classes
Infrastructure

AV network

Interactive whiteboards & multiple display screens

built in computers

interconnected wired & wireless network

shared file space
Video conferencing built in

interactive large-scale displays
flexible, comfortable mobile furniture

laptops and iROS
An Exercise in Flexibility

The Peter Wallenberg Learning Theater supports a broad range of disciplines and activities. September 27–28 2007.

Above: Professor Martin Fischer facilitates project work in Civil and Environmental Engineering

Above Right: Professor John Edmark’s Studio Art students share reflections

Right: Dr. Gili Drori’s lectures to Education and Sociology graduate students
Courses in Wallenberg Hall

Classics
History
German
Japanese
Chinese
Hebrew
Mechanical Engineering
Computer Science
Public Policy
Education
Medical School
Program in Writing and Rhetoric

Biological Sciences
Science, Technology, Society
English
Drama
Linguistics
Bioinformatics
Biochemistry
Cultural Anthropology
Anthropological Sciences
Management Sci. and Engineering
Communications
School of Business
“Verbs instead of Nouns”

Learning as an Active Process

What are faculty and students doing in Wallenberg Hall?
Comparing
Presenting
Comparative approach:
Plant pathogens, soil bacteria, and other microbes tend to group into “γ” or “K” types.

Experimental approach: E. coli maintained in “γ” or “K” type environments. Trade-off present?

Constructing
Visualizing

- Activity
  - Math
- Concept
  - How this helps
  - This represents
  - Mind-eyes
- Z-Axis
  - Opaque for 2D grid
  - Clear grid for 3D
  - One collapsible pole for 3D
  - One "
Faculty use of Interactive Whiteboards
Evolution of Interactive Whiteboards
Decision Points

interaction experience

rear and front projection

size & aspect ratio
instant markup of maps, GIS images and other student-generated artifacts
Generate complex relational diagrams over multiple class sessions.
Markup and analyze Latin texts with original text on opposite screen for comparative use.

malis carere quaeritis laboribus;
nulla sit hac potior sententia: Phocaerum
velut profugit exsecrata civitas
que lares patrios habitandaque fana
elixit et rapacibus lupis,
quae quocumque ferent, quocumque per undas
vocabit aut protrovers Africurus.

Quae? an melius quis habet suadere? secunda
em occupat, quid moratur alite?

Hac in haec: 'simul imis saxa renarant
et sola, ne redire sit nefas;
Students work in tandem with faculty member to analyze texts — need more interactive boards!
Capture student-generated reactions to course discussions as a “sidebar” brainstorming session.
Complex 3 dimensional objects are easily illustrated and broken down into component parts for later review.
21st Century faculty development

Education Graduate Seminar
Student Impact

- **76%**: Enjoyed learning in the Wallenberg vs. regular classroom
- **75%**: Utilizing technology tools enabled them to better engage with course
- **69%**: More engaged because of the technologies present in room
Keys to Our Success

Shift focus from technologies to teaching methodology

Focus on mapping technologies to teaching processes

Make it Simple

Empower Students

Build a sandbox first, then your castle
Thank you!

Menko Johnson, MA, M.Ed
Instructional Technologist
Stanford Center for Innovations in Learning (SCIL)
menko.johnson@stanford.edu
650.725.0227

Wallenberg Hall/SCIL
Stanford University
http://wallenberg.stanford.edu/conferences

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