Calibrating the Return of Investing in Active Learning Spaces: The Institutional Perspective

September 15, 2016
Focusing on the Future of Planning Learning Spaces
Spring 2016 LSC Regional Roundtables
Webinar Outline

I. Introductions: the People, the Spaces

II. Investing in evidence-based research on learning

III. Investing in integrated planning

IV. Investing in the institutional future
I. Introductions: The People
Robert Emery Smith

Director of Classroom Innovation
Vice Provost for Teaching and Learning
Stanford University
Jon Dorbolo

Associate Director, Technology Across the Curriculum

Oregon State University
John Greydanus

Director, Academic Technologies
Oregon State University
Elizabeth J. Beise

Associate Provost, Academic Planning & Programs

Professor of Physics

University of Maryland, College Park
Hilary Gossett
Assistant Director of Academic Facilities
University of Maryland, College Park
Kristen Ambrose

Senior Associate

Ayers Saint Gross
Tom Bauer
Associate Principal
Bora Architects
I. Introductions: The Place

Oregon State University
*Learning Innovation Center (LInC)*
Bora Architects

University of Maryland College Park
*The Edward. St. John Learning and Teaching Center*
Ayers Saint Gross
Oregon State University— Learning Innovation Center (LInC)

Bora Architects
BUILDING PROGRAM  Formal Learning Program

2145-2270 Total Classroom Seats
Integrated Instructional Resource Center
University Honors College
University of Maryland College Park
The Edward. St. John Learning and Teaching Center

Ayers Saint Gross

10,000 students per day

187,750 GSF

$111 Million

Academy for Innovation + Entrepreneurship

FEARLESS IDEAS
DRIVE
PASSIONATE LEADERS

OUR FEARLESS IDEA BREAKS WORLD RECORDS
TEAM CAMERON / A. JAMES CLARK SCHOOL OF ENGINEERING

We designed, built and flew a human-powered helicopter for a record-smashing 60 seconds.
University of Maryland College Park
The Edward. St. John Learning and Teaching Center

Level 1 Floor Plan
Elevation 98’
University of Maryland College Park
The Edward. St. John Learning and Teaching Center

Ground Floor Plan
Elevation 131’
Questions and Conversation
Webinar Outline

I. Introductions

II. Investing in evidence-based research on learning

III. Investing in integrated planning

IV. Investing in the institutional future

Success may also hinge on the extent to which ... students participate in activities—such as peer-to-peer support, study groups, social activities, tutoring, and mentoring programs—that can promote academic success and social integration.”

Oregon State University—Learning Innovation Center (LInC)

Bora Architects

ORIGINAL PROGRAM

State-of-the-art classrooms to meet a variety of teaching and learning styles. A projection of requirements for new modern classroom space includes:

(1) 600-1200 seats
(1) 400 seats
(2) 300 seats
(1) 250 seats
(1) 200 seats

(1) 150 seats
(2) 125 seats
(2) 80 seats
(3) 60 seats
(2) 35 seats
UNIVERSITY GOAL

INCREASE RETENTION + GRADUATION RATES

ENHANCE LEARNING & ENGAGEMENT AT OSU
and
ACCOMMODATE GROWTH OF THE STUDENT POPULATION
PROJECT GOALS

CREATE AN INSPIRING **TEACHING LABORATORY** FOR THE CAMPUS

PROMOTE **ACTIVE LEARNING** AND ENGAGEMENT ACROSS ALL ABILITIES AND AT ALL SCALES OF CLASS SIZES

ENHANCE INTERACTIONS AMONGST AND BETWEEN ALL USER GROUPS TO CULTIVATE **VIBRANT COMMUNITY**
## ACTIVE LEARNING: Spatial Characteristics

<table>
<thead>
<tr>
<th>Visibility</th>
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</table>
What does active learning look like?
INNOVATIONS AND CONCEPTS
## Course Section Assignments

From this screen, you can display, add, change and delete data pertaining to Course Section Assignments.

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Name</th>
<th>Section</th>
<th>Meeting</th>
<th>Teacher</th>
<th>Term</th>
<th>Type</th>
<th>Status</th>
<th>Start Date</th>
<th>End Date</th>
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<td>H308</td>
<td>1</td>
<td>00 (308)</td>
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<td>SA4</td>
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<td>741</td>
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<td>Sep 01, 2009</td>
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<td>2nd Semester</td>
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<td>3</td>
<td>53 (CAFE)</td>
<td>SARAH Teacher2002</td>
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<td>Assigned</td>
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</table>
Armory Lecture Hall
Introductory Math
Spring 2013
Active Learning (despite the classroom!)

Introductory Physics for Life Sciences
Fall 2013
General Education Curriculum

Implemented Fall 2012

Goals and expected outcomes:
• Develop skills in
  • Clear Writing
  • Effective Communication
  • Critical Reasoning
  • Analytic Reasoning
  • Effective Presentation Skills
• Strengthen knowledge in major areas of study
• Broaden knowledge of civilizations past and present
• Establish the ability to thrive both intellectually and materially
• Define the ethical imperatives necessary to create a just society in their own communities and in the larger world.

http://www.gened.umd.edu/
I-Series

Imagination Innovation Issues Implementation Investigation Inspiration Intellect
Signature courses for the General Education Program at the University of Maryland

CRITICAL REASONING AND PROBLEM SOLVING

All 12 academic colleges participate:
80 – 120 students per course – engaged and interactive learning to make students THINK

Approach large problems from particular (inter)disciplinary perspectives with the aim to examine the ways in which diverse intellectual traditions and disciplinary protocols address big questions.
Stakeholder Involvement
Summer 2012
Student- Centered Research

STU  Student Temporal Unit

LEARNspace
- depth 18-24”
- width 30”

Aisle 36”

STU’s Workspace

STUDENT

KNOWLEDGE TRANSFER

KNOWLEDGE SOURCE

VISUAL TEACHING AID

LEARNING IN LINES

LEARNING IN CIRCLES
Precedent Tours and Interviews

UNIVERSITY OF VIRGINIA

RICE HALL, SCHOOL OF ENGINEERING, OLSSON AUDITORIUM
Precedent Research
JOHNS HOPKINS UNIVERSITY, CAREY SCHOOL OF BUSINESS

Collaborative tiered - two rows per tier
Precedent Tours and Interviews

UNIVERSITY OF VIRGINIA

MOORE HALL, MEDICAL EDUCATION BUILDING
Questions and Conversation
Webinar Outline

I. Introductions

II. Investing in Evidence-Based Research on Learning

III. Investing in Integrated Planning

IV. Investing in the Institutional Future

People are usually resistant to change. One reason that many faculty may maintain traditional teaching practices is that they have been successful in their fields and therefore assume that the educational approaches that taught them so effectively are appropriate for all students. But resistance to change is human and has been confronted successfully in numerous other settings. The study of individual, organizational, and cultural change is a sophisticated field that can inform the design of transformation strategies for STEM education in the first two years of college.

## ACTIVE LEARNING: Spatial Characteristics

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What does active learning look like?
Active Learning Environment Research
Tiered Collaborative Teaming Module
Abstract Pedagogical Teaming Modules

LEARNING SPACE CAPACITIES

<table>
<thead>
<tr>
<th>Based on Teaming Module of 6 Students</th>
<th>Tiered Collaborative Rows</th>
<th>Tiered Collaborative Ellipse</th>
<th>Flat Collaborative Circle</th>
<th>Total Per Capacity</th>
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<tbody>
<tr>
<td></td>
<td>78</td>
<td>132</td>
<td>156</td>
<td>4</td>
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<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>10</td>
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</tbody>
</table>

Total per Teaming Module: 3, 2, 5, 10
INSTRUCTIONAL SPACE

Program
- Instructional Space
  Classroom/Lecture Halls
- Center for Teaching Excellence
- OIT's Classroom Technology Services Academic Support
- Study/Lounge Space
- Support

**Total Seating Capacity:** 1830
Tiered Collaborative Ellipse Layout
TERP Classroom Prototypes

TAWES THEATER RENOVATION INTO CLASSROOMS

- Office Space for American Studies
- Six collaborative classrooms
  - Two 115 seat tiered
  - One 80 seat flat
  - Three 30 seat flat
- Opened Spring 2016
Classroom Prototypes

TAWES CLASSROOMS

TWS 1310- TERP 6Round Classroom

TWS 1313- TERP Eye2Eye Classroom
• “Elevate Fellows”: faculty development
• University Teaching and Learning Program (graduate students)
• Individualized faculty consultations
• Academic Peer Mentoring (undergraduates)
• Learning Analytics Research Group
Classroom Prototypes

Teach, Engage, Respond, Participate

Eye2Eye

Tiered-Collaborative

6Round

Media Share
Webinar Outline

I. Introductions

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IV. Investing in the institutional future
Oregon State University—Learning Innovation Center (LInC)

Bora Architects
The Geometry of Learning: Executive Summary

What is it? The Geometry of Learning is a research framework designed to construct a large set of broad and deep knowledge about classroom learning spaces at Oregon State University (OSU).

What is the purpose? We are investigating whether and how physical characteristics of classrooms correlate to learning outcomes and teaching practices.

Why does it matter? Prior research shows that characteristics and conditions in classrooms do correlate to learning outcomes. If we identify these factors in OSU classrooms, we may plan to optimize the conditions for student success. Evidence-based findings about classroom values and learning will inform OSU’s ongoing investment in classroom redesign.

What is being measured? Factors potentially related to student success.
- Student daily seat locations.
- Student learning outcomes (e.g. clicker responses, course grade percentile, GPA).
- Student attitudes and self-reported conditions (e.g. qualitative survey).
- Classroom values (e.g. light, sound, angle of vision, proximity to instructor, mobility).
- Validation of clicker method of seat location.
- Faculty experiences and strategies for teaching-in-the-round.
The Geometry of Learning: *Tales from the learning circle*: Executive Summary

**What is it?** Tales from the learning circle is a research project designed to collect qualitative data from instructors who have taught in the LINC classrooms-in-the-round (LINC 100, 200, 228). This study is part of our comprehensive research agenda, *The Geometry of Learning*.

**What is the purpose?** The primary objective of this project is to discover themes related to teaching-in-the-round in order to provide material for teacher preparation and to report as findings about these unique classrooms as learning spaces.

**What is the focus of study?** Our primary research question is: What is the impact of learning space conditions on instructor’s concept, practice, and assessment in teaching?

**Why does it matter?** Teacher preparation is a major factor in student experience and teaching-in-the-round is an unprecedented challenge in higher education. Organizing descriptions and advice from experienced instructors will be a valuable preparatory aid. Analysis of this data provides OSU a basis for assessing what does and noes not work in those learning environments.

**What is being measured?** We will measure descriptive and prescriptive responses from instructors based on their experiences of teaching-in-the-round.
University of Maryland College Park
The Edward. St. John Learning and Teaching Center
Student-Centered Research
Steelcase Global Posture Study

• Recommendations on layout of the informal spaces
• Black box classroom – interior designed by students

Student- Centered Research
Student Report

Academic Spaces Design Team

Recommendation Report
University of Maryland Student Government Association
February 28th, 2014

Academic Spaces Design Team:
Sadie Dempsey, Erika Laux, Yoel Alemayehu, Gina Fernandes, Michael Montoya, Valerie Sherry, Benjamin Snellings, Cyrus Hashemi, Noga Raviv, Oliver Owens, Tareq Zietoon, Sandy Wan, Betsy Nolen, Lubna Chaudhry - Compiled by Harold Webb
University of Maryland College Park
The Edward. St. John Learning and Teaching Center
University of Maryland College Park
The Edward. St. John Learning and Teaching Center

Classroom Master Plan

- Scheduling
- Facilities
- Technology
- Pedagogy

- Creation
- Management
- Operation
TERP Classroom Prototypes
Incremental Transformations

TERP Eye2Eye Classroom - Pilot
School of Public Health

TERP Media Share Classroom - Pilot
Computer Space Sciences
Classroom Prototypes
Incremental Transformations

UMD Crime Lab w/Steelcase node chairs
Utilization Study

CLASSROOM (110) UTILIZATION

SEAT FILL
OCCUPIED SEATS / AVAILABLE SEATS
> 67% X

WEEKLY ROOM HOURS
TIME SCHEDULED DURING WEEK
> 30 HOURS/WEek

STU %
TIME
(1 WEEK)

= 20.1 WEEKLY CONTACT HOURS (STUDENT + FACULTY)

WHAT ABOUT SPACE?
OTHER MODES OF LEARNING?
(FACULTY + FACULTY)
(STUDENT + STUDENT)
Utilization Study

CLASSROOM (110) UTILIZATION
MORE SF/STU ALLOWS FOR FLEXIBILITY OF USE

WITH MORE UTILIZATION DIVERSITY = INCREASED SEAT FILL & HOURS SCHEDULED

1600 NASF / 48 STU = 33.3 SF/STU

SPACE

STU

% TIME

(1 WEEK)

18 SF/STU x > 67% x 30 HOURS = 362
18 SF/STU x > 80% x 30 HOURS = 432
18 SF/STU x > 80% x 36 HOURS = 518
33 SF/STU x > 67% x 36 HOURS = 796
33 SF/STU x > 80% x 36 HOURS = 950
Utilization Study

Boeing 737 Aircraft operated by Southwest

\[
\frac{1,120 \text{ SF}}{139 \text{ passengers}} = 8 \text{ SF/STU} \times 95\% \times 70 \text{ hours} = 536
\]

*includes cockpit, galley, etc.
Final remarks

Jeanne L. Narum, Principal – Learning Spaces Collaboratory
Questions and Conversation
Learning Spaces Collaboratory

Join the conversation – send us your ideas about questions to ask in shaping learning spaces
pkallsc@pkallsc.org

Fall LSC Webinars

• A Campus-wide “Space Matters” Culture
  October 5, 2016

• Spaces for Dissolving Boundaries between Communities
  November 1, 2015

• Transformative Renovations and New Connections
  December 1, 2015