active learning spaces

research and trends and evidence that space matters
who we are...
Steelcase Education is a dedicated group within Steelcase focused on developing evidence-based researched solutions for education environments. They focus on understanding behaviors in physical spaces. Innovation in design, furniture, tools, and technology integration for learning environments.
OUR MISSION

...help colleges and schools create the most effective, rewarding, and inspiring learning environments...
why does space matter?

Evidence-based design research indicates that space impacts behaviors. In the instructional space, or classroom, the culture for the past 100 plus years has been a row-by-column [Scott-Webber, 2004] passive learning situation. The behaviors of both teacher and student have been defined by that physical layout. The teacher teaches and the students listen.

About Dr. Lennie Scott-Webber, Ph.D.

I’ve owned and operated design firms in the U.S. and Canada, taught at three universities and held administrative positions as well, all the while researching educational environments. Over the years I’ve seen the insides of more classrooms than I can count. Many of them are an insult to students and teachers alike.

My passion, and my job, is helping people understand the behaviors that come from different environments, and creating classrooms that truly support new ways of teaching and learning.
Education leaders are struggling with…

• How to attract and retain top faculty
• How to attract and retain top students
• How to improve student success
• How to incorporate new, more effective pedagogies
• How to help students develop 21\textsuperscript{st} century skills
• How to integrate technology and future-proof their investments
• How to meet the expectations of 21\textsuperscript{st} century students
• How to improve space utilization and keep up with demand
• How to fund needed change
• How to stay relevant in the face of disruptive online delivery models?
But with all of these demands, and need for change, look what we see...
PUBLIC 4YR
a tsunami is building...
What are education leaders asking us?
More and more they are asking…

• How might we make our learning spaces more engaging, dynamic, and active?

• How might we achieve more flexibility in our general use classrooms?

• What should we do to help our faculty understand how to teach in these new active learning spaces?

• How might we create better solutions for student collaboration, before, during, and after class?

• We need to improve our student’s success. How can the space, furniture, and technology help?
So...what can we do?
what challenges/opportunities are you facing?
teaching and learning are changing

passive learners  →  active learners
directed learning  →  facilitated learning
knowledge revealed  →  knowledge discovered
alone  →  alone and together
knowledge is discrete  →  knowledge is embedded
content focused  →  content and process focused
technology is changing

- MOOCs
- 1:1 and BYOD
- Blended learning
- Distance learning
- Flipped classrooms
- Collaboration
  - student groups
  - peer-to-peer
  - faculty/student interaction
  - virtual
space remains the same

History repeating itself
independent solutions = inconsistent fit
a new ecosystem of active learning
“Innovation is about finding good problems to solve.”

David Kelley, IDEO
HUMAN-CENTERED / DESIGN THINKING RESEARCH PROCESS

1. **UNDERSTAND**
   - SECONDARY RESEARCH; EARLY OBSERVATIONS

2. **OBSERVE**
   - SOCIAL ANTHROPOLOGY; ON-SITE ETHNOGRAPHY

3. **SYNTHESIZE**
   - PATTERN ANALYSIS
   - PATTERN CODING
   - RESEARCH
   - INSIGHTS
   - DESIGN PRINCIPLES

4. **REALIZE**
   - IDEATION PHASE

5. **PROTOTYPE**
   - HALF – TO FULL-SCALE; TRIAL AND ERROR

6. **MEASURE**
   - ACTIVE LEARNING
   - POST-OCCUPANCY EVALUATION
   - AL-POE™
observations & insights
Classrooms often pose physical and psychological barriers to teaching and learning.
Insight #2

Classrooms often do not support the individual needs of students and instructors.
Insight #3

Learning happens everywhere, but most “in-between” spaces are inadequate for new users.
opportunities
OPPORTUNITIES

1. Remove barriers in the classroom
2. Support individual needs of students and faculty
3. Make libraries and in-between spaces work harder
THE OPPORTUNITY
THE GOAL

Move from this...
THE GOAL

Move from this… …to this.
active learning applications
our hypothesis

allow all classrooms to easily transition between lecture and group work.
*Click on the image below to view an animation of an active learning classroom*
• the geometry of the classroom provides multiple stages for the instructor and student to engage.

• the triangulation of projected digital information improves sight lines and student interaction.

1 SQUARE DESIGN
1 INTERACTIVE WHITE BOARD
3 TRIANGULATED PROJECTION AREAS
4 TABLES IN AN X CONFIGURATION FOR CONSTANT VISUAL ACCESS TO ALL PEOPLE AND CONTENT
24 SWIVEL CHAIRS FOR INSTANT CHANGE IN VIEW PLANES
HUDDLE BOARDS ON EACH WALL  TRACK AND RACK CART FOR ANALOGUE CO-CREATION
OPEN AREAS FOR FACULTY ROAMING AND JUST-IN-TIME ASSESSMENT
DOOR IN CENTER OF WALL
allow everyone to be seen and be heard, co-create, build community

1. allow the instructor to be the “guide on the side”
2. provide easy access to tools for students and instructors
3. allow for information to be persistent over time
4. support co-creation both analogue & digital
*Click on the image below to view an animation of an active learning classroom*
out with the old school.
in with the new school.

// introducing node

For the many modes of learning. Designed for quick and easy transitions from one teaching mode, to the next, and back, without interruption.

A great animation!
Node™ supports active learning, even in densely packed classrooms...
*Click on the image below to view an animation of an active learning classroom*
...what about table based classrooms?
Verb is a table-based active learning collection
Verb is a table-based active learning collection
Verb is a table-based active learning collection
*Click on the image below to view an animation of an active learning classroom*
photos of applications
University of Missouri Kansas City, Bloch School of Business
University of Missouri Kansas City, Bloch School of Business
SOLUTIONS IN APPLICATION

University of Florida
HIGHER-ED LIBRARIES & IN-BETWEEN SPACES
This framework, based on our research, explains the emerging needs, adjacencies and trends within a library.
RHYTHM OF LEARNING CONSTRUCT

Mid-Level Energy; Social Connections; Palette Reflects Energy-Mid Level Chroma/Cool Hues; Multiple types of Postural Choices; Connection to Natural Light; Power; Interconnectivity

Quiet Energy; Solo; Palette Reflects Psychological Energy- High Chroma/Cool Hues; Multiple Types Of Postural Choices; Connection To Natural Light; Power; Interconnectivity; Long-Term Task Support

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Give Them Tools to Manage Their Own Learning

Contemplative Spaces
Comfortable Seating - Long Sessions
Noise system to Reduce Sound
Give Them Tools to Manage Their Own Learning

Noisy | Collaborative spaces
Portable tables, technology, whiteboards
Noise system to encourage conversation
Give Them Tools to Manage Their Own Learning

Whiteboard ‘Rooms’
‘Maker spaces’
Give Them Tools to Manage Their Own Learning

Transition Zones Between Quiet + Noisy Spaces
Give Them Tools to Manage Their Own Learning

Fully equipped group study rooms
Efficiencies—room scheduling from any portable device or at the door
SOLUTIONS IN APPLICATION

Grand Valley State University, Michigan
SOLUTIONS IN APPLICATION

Grand Valley State University, Michigan
University of California, Los Angeles
Phoenix College, Arizona
How effective are active learning classroom solutions?
POE: Post-Occupancy Evaluation

Understanding space and student engagement through research

Steelcase Education Solutions created a post-occupancy evaluation (POE) survey instrument to measure the effects of our solutions as it relates to student engagement in the classroom. Developed using a validated survey structure by external researchers and mapping it back to secondary research by the National Survey of Student Engagement (NSSE), brain science and brain compatible classrooms; the POE tool may garner statistically significant data, allowing schools, colleges and universities to maximize their investment in space and technology solutions by understanding how space impacts student engagement.
AL-POE©: Overview

Base of evaluation: Student Engagement

Engage the Brain
Connects to brain science and learning research.

Engage the Individual
Connects to learning science, National Survey of Student Engagement (NSSE).

Engage Interpersonal Connections
Connects to NSSE, SES research, Dr. Scott-Webber’s early research

Have Space Support Engagement
Brain compatible classrooms, SES.
POST-OCCUPANCY RESEARCH

AL-POE©: Structure

OLD/PRE

row-by-column

NEW/POST

new environments

LearnLab (or mediascape LearnLab)

Mediascape

node classroom

Verb Classroom
AL-POE©: Structure

The degree:

- of emphasis on collaborative work.
- to which you were/are able to stay focused.
- of flexibility for you to engage in different learning activities.
- to which your coursework includes "real-life" scenarios.
- to which you were/are able to get in-class feedback from your teacher on your work.
- to which you were/are able to engage in the ways that you learn best [i.e., seeing, hearing, doing].
- of physical movement you engaged/engage in within the classroom.
- to which you were/are stimulated by your classroom environment
- to which you found this class to be an enriching educational experience.

two-step decision process

Concurrent evaluation of OLD and NEW environments

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12 identified factors
results
Student Survey Results

- Ability to be creative
- Increase in motivation to attend class
- Ability to achieve a higher grade
- Engagement in class

Percentage of students who attributed moderate to exceptional increase in factors in new classroom (rating of 3, 4 or 5 on Likert scale)
POST-OCCUPANCY RESEARCH

Instructor Survey Results

- Ability to be creative: 91%
- Increase in motivation to attend class: 84%
- Ability to achieve a higher grade: 63%
- Engagement in class: 99%

Percentage of instructors who attributed moderate to exceptional increase in factors in new classroom (rating of 3, 4 or 5 on Likert scale)
active learning spaces
What's new????
**blended learning**

- students learn in a supervised brick-and-mortar location away from home at least some of the time

- students experience online delivery with some control over the time, place, path, and/or pace

![Diagram showing the spectrum of blended learning models]

A variety of blended learning models are emerging…

- face-to-face driver
- rotation
- flex
- online lab
- self-blend
- online driver

*Source: Adapted from Classifying K-12 Blended Learning, Innosight Institute, 2011*
blended learning

traditional model
- remembering
- understanding
- applying
- analyzing
- evaluating
- creating

blended model
- remembering
- understanding
- applying
- analyzing
- evaluating
- creating

adaptation of revised New Bloom’s Taxonomy

Face to Face

Face to Face

Online

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blended learning gives rise to a wider range of classroom activities, both face-to-face and digital.

**Face-to-Face activities**
- independent work
- tutoring and peer instruction
- student-led discussion
- lecture

**Computer/Video Conference Activities (Virtual)**
- tele-classrooms
- video conferencing
- online tutoring
- independent work, self-paced workstations

**alone settings**
- online, self-paced workstations

**together settings**
- tele-classrooms
- video conferencing
- meeting rooms

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The assortment of devices, modes of accessibility and choice of space enhances the user’s ability to access digital content and analog tools to personalize their learning experience.
Active learning is merging into large classrooms on higher education campuses.
In summary...
21st CENTURY LEARNERS
20th century teaching practices
19th century learning places
Let’s bring today’s students, today’s teachers, and today’s spaces ALL into the 21st century...
By creating an active learning ecosystem that engages, inspires, and improves learning!
thank you