TAKING THE A4LE | UTA SCHOOL STUDIO TO THE NEXT LEVEL...
INTRODUCTIONS

PRESENTERS | A4LE UTA SCHOOL STUDIO
Donald Gatzke, FAIA, Professor, UTA School of Architecture
Roberto Zuniga, AICP, ALEP, Huckabee
Anne Hildenbrand, AIA, Senior Director, BRW Architects

A4LE UTA SCHOOL STUDIO CHAIR
Beverly Fornof, Associate, Corgan
Have you wondered why we are still designing schools the same way we did 100 years ago? Let’s stop wondering and engage our regional educators in a thought provoking discussion on the importance of research in educational facility planning and design. Learn how the A4LE UTA School Studio partnership did just that by developing innovative tools through the collaboration of students, facilitators, educators and practitioners. The studio’s intentions were...

- To direct the activities and intellectual resources of a traditional architectural design studio towards the identification and dissemination of emerging issues in educational facility design that will impact this building type in the future;
- To contribute to the collective knowledge base in school design and make it available to the profession;
- To explore the implications of collected knowledge in the formal design process; and
- To foster a knowledge based design process in the next generation of professionals.

We can build on this mission together by engaging at a local level to encourage research in education. This research will enhance our common goal of quality and innovation in educational facility planning and design. At the collegiate level, where creativity thrives, we have the freedom and energy to truly experiment and test this approach.
LEARNING OBJECTIVES

• Create a collaborative team that engages facilitators, educators and practitioners
• Identify emerging issues in educational facility design that will impact this building type in the future
• Contribute to the collective knowledge base in school design and make it available to the profession
• Explore the implications of collected knowledge in the formal design process
1. A4LE | UTA SCHOOL STUDIO PARTNERSHIP BACKGROUND

2. THE RESEARCH...Learn from the un-biased and innovative research based university design studio

3. STUDENT PROJECT WORK... View different approaches and solutions by several students
OVERVIEW

4. STUDENT PROJECT QUESTION AND ANSWER

5. WHERE DO WE GO FROM HERE | AUDIENCE DISCUSSION

...Foster new talent and passion for K-12 planning, design, and construction practices
studio background
HISTORY OF THE A4LE | SCHOOL STUDIO COLLABORATION

- **SUMMER 2016** Start Discussions with UTA CAPPA DEAN
- **FALL 2016** Idea for Studio Culminates | Partnership with Monterrey Institute of Technology
- **SPRING 2017** A4LE | UTA and Monterrey Tec School Studio Competition
- **FALL 2017** A4LE | UTA School Studio Research
- **2018** Publish Research | Apply for Fall 2018 School Studio Research Grant
NEW FOR THE FALL 2017 STUDIO

• SEPARATE FROM COMPETITION
• RESEARCH BASED RATHER THAN COMPREHENSIVE STUDIO
• SCHEMATIC DESIGN OF 9TH GRADE CENTER
Wm. Kelly Horn, Executive Director of Plant Services, Arlington ISD
C Drone, LPA
Kip Jameson, Huckabee
Amy Bates, Plano ISD
Nick Nepveux, Assoc. AIA, Glenn Partners
Haley Walton, Corgan
Nathan Huett, Corgan
O. Wayne Reynauld, AIA, REFP, HKS
Mary O’Brien, WRA Architects
Lisa Lamkin, FAIA, BRW Architects
Abby Hiles, AIA, BRW Architects
THE LONG LIST

- Outdoor learning spaces
- Passive energy integration
- Distributed library
- Decentralized food service to replace cafeterias
- Expansion/contraction of facility in response to changing student enrollment
  - High Population Growth & Population Decline scenarios
  - Demographic Change
  - Population Projections
  - Capacity and Utilization of a facility
  - “Pop up” schools
  - Portable labs “educational food trucks”
- Integration of storm shelters into facility
- School security
- Collaborative classroom modules
PRECONCEIVED NOTIONS OF CLASSROOM

Traditional “Classroom”

Modern “Learning Studio”
Figure 1: Why Do Teachers Leave?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal life reasons (pregnancy, child care, other)</td>
<td>37%</td>
</tr>
<tr>
<td>Pursue a different position</td>
<td>28%</td>
</tr>
<tr>
<td>Dissatisfied with school assessment/accountability policies</td>
<td>25%</td>
</tr>
<tr>
<td>Dissatisfied with administration</td>
<td>21%</td>
</tr>
<tr>
<td>Dissatisfied with teaching as a career</td>
<td>21%</td>
</tr>
<tr>
<td>Too many classroom intrusions</td>
<td>18%</td>
</tr>
<tr>
<td>Student discipline problems</td>
<td>17%</td>
</tr>
<tr>
<td>Dissatisfied with support for student assessment</td>
<td>17%</td>
</tr>
<tr>
<td>Lack of autonomy</td>
<td>14%</td>
</tr>
<tr>
<td>Want or need higher salary</td>
<td>13%</td>
</tr>
<tr>
<td>Lack of influence over school policies</td>
<td>13%</td>
</tr>
<tr>
<td>Enrolled in courses to improve career opportunities</td>
<td>13%</td>
</tr>
<tr>
<td>Dissatisfied with job assignment</td>
<td>12%</td>
</tr>
<tr>
<td>Moved or geography issues</td>
<td>11%</td>
</tr>
</tbody>
</table>

The percentage of voluntary leavers who rated the factor as extremely or very important in their decision to leave. Percentages do not add to 100 because teachers can select multiple factors.

Source: LPI analysis of the Teacher Follow-up Survey (TFS), 2013, from the Schools and Staffing Surveys, National Center for Education Statistics.
STUDENT TEACHER DYNAMICS

Teacher

Class of students

Teacher-centred learning

Student-centred learning

Knowledge

Experience

EXPERIENCE

BELIEFS

Individual & collaborating students
“Doing Projects” vs. Project-Based Learning

**“Doing Projects”**
- Teacher has knowledge
- Teacher gives directions to students
- Students follow directions
- Students learn facts by following directions
- Students present facts. Unit ends.

**Project-Based Learning**
- Teacher asks a question
- Students apply their knowledge/skills to solve a real-world problem. Then they are ready to answer more questions!
- Students devise their own directions to take to solve problem
- Students test and revise their own directions
- Students learn information and develop skills
FOCUSED RESEARCH TOPICS

• STUDENT CENTERED LEARNING
• SECURITY
• UNIVERSAL DESIGN
• BIOPHILIC LEARNING
• HIGH PERFORMANCE FACILITIES
STUDENT CENTERED LEARNING

• Multiple learning options for teaching
  – Individual
  – Small Group
  – Large Group

• Close proximity to support spaces
STUDENT CENTERED LEARNING

THREE SCALES OF SPACE

1. INDIVIDUAL

2. SMALL GROUP

3. LARGE GROUP
Proximity of Spaces

LEARNING SPACE
LAB/MAKER SPACE
SMALL GROUP SPACE
STAGE
SEATING
CIRCULATION
OUTDOOR SPACE
SECURITY

• Control access with one central secure entry points
• Distribute Administration with clear line of site to all portions of facility
• Securable Control Points
• Create Physical Barriers to control approach to building
• Control visitor’s views
SECURITY

natural barrier

distributed population

distributed admin

control access
UNIVERSAL DESIGN

• Clear transition zones
  – Separates High-Stimulus from Low-Stimulus
  – Encourage one-way flow

• Sensory Cues

• Accessible circulation
  – Ramps
BIOPHILIC LEARNING

• Outdoor Learning
  – Integrate seating
  – Separate from public
  – Orientation to wind and sun for comfort

• Integrate Outdoor Elements in the Interior Learning Spaces
  – Natural Interior Finishes
  – Natural Light
  – Views to Outdoors
BIOPHILIC LEARNING

- Building oriented parallel to prevailing wind, to promote a cooler micro-climate
- Shading for work and employees
- Wings for micro-climate control

- South sun
- Roof canopy for shading
- Roof garden for shading
- Green roof
- Green wall
- Green wall
- Green wall
HIGH PERFORMANCE FACILITIES

- Orientation to Wind (45 degree to wind) to increase opportunities for natural ventilation
- Orientation Sun to safe energy.
- Views to outside to enhance student performance
- Natural light to enhance student performance
- Stack Ventilation
- Acoustic separation with open floor plan
- Use of color to create focus
DAYLIGHTING: STUDENT PERFORMANCE

In a study of 90 Swedish elementary school students, researchers tracked behavior, health, & cortisol (a stress hormone) levels for one year in 4 classrooms w/ varying daylighting levels.

**Results**

Work in classrooms w/ out daylight may upset the basic hormone pattern, if this may influence the children's ability to concentrate or cooperate, it has an impact on annual body growth & absences.

Daylighting: Room Depth

- Room depth should be less than 2 1/4 x the height of the window head to maintain a minimum level of illumination & even distribution of light.

- Floor depth no more than 6 ft. From W-S direction has been shown to be viable for daylighting.

![](image)

Head of window (H)

(2 1/4 x H) = Room depth
Energy and Performance: Ventilation

Stack Ventilation

- Effective in breezy days
- Does not need wind

Hot air rises, pulling cooler fresh air into the building

Air Pathways:
- Horizontal
- Vertical
- Low air pathways
- High air pathways

Bouyant's Principle:

Uses wind speed differences to move air

The farther the air is from the ground, the better the Bouyant's effect works

Roof Top Air Collector:
- The cooler air gets pulled through the smaller opening
- The hot air rises and exits through the larger opening
fall 2017 student projects
...9TH GRADE CENTER
CLARISSA SUIKKARI

LEARNING STUDIOS
1. THREE SCALES OF SPACE
Three Scales of Space

By Clarissa Suikkari
1. THREE SCALES OF SPACE

LARGE GROUP
2. ROUND FORMS

By Clarissa Suikkari
3. FLEXIBLE FURNITURE

LEARNING STUDIOS
3. FLEXIBLE FURNITURE
Visual Surveillance
Air Flow
Biophilic Learning
WHERE DO WE GO FROM HERE?

...Foster new talent and passion for K-12 planning, design, and construction practices