



# FOCUSED ON WHAT MATTERS.®

We are dedicated to improving the quality of life for all that live, work, play, and learn in the built environment.



# THE ENHANCED ACTIVE LEARNING CLASSROOM







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25 years experience in managing the planning, programing, and design of education facilities

Developed BRW's Storm Shelter Standards

Past Texas Society of Architects (TxA) Codes and Standards Committee

Currently serving as President of the A4LE North Texas Chapter

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**MEPCE**

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PRINCIPAL with MEPCE

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# AIA CONTINUING EDUCATION

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This course is approved for 1 LU | HSW AIA CES credit.





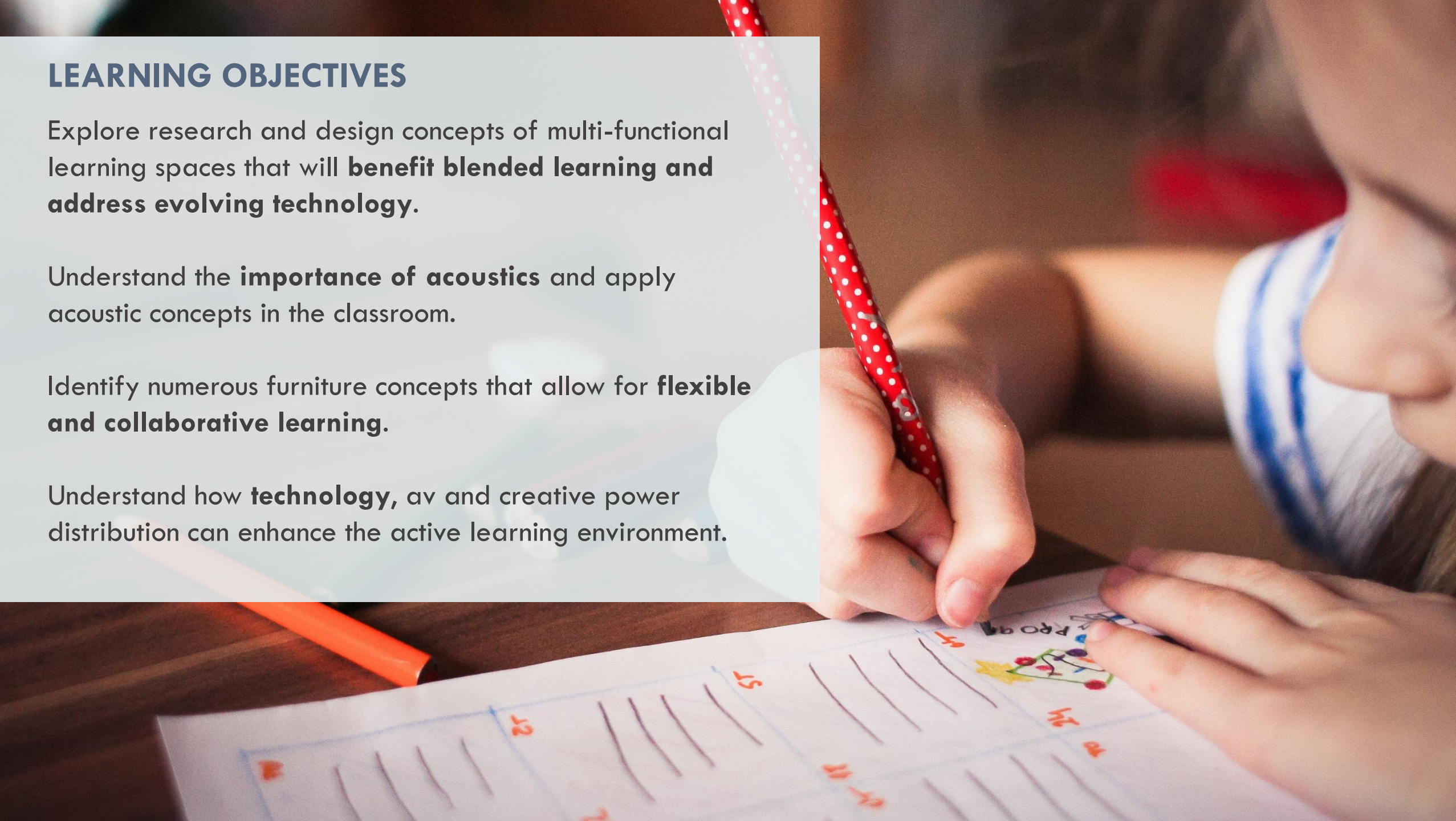
## LEARNING OBJECTIVES

Explore research and design concepts of multi-functional learning spaces that will **benefit blended learning and address evolving technology.**

Understand the **importance of acoustics** and apply acoustic concepts in the classroom.

Identify numerous furniture concepts that allow for **flexible and collaborative learning.**

Understand how **technology**, av and creative power distribution can enhance the active learning environment.





# 01

## WHAT IS ACTIVE LEARNING

COVID accelerated the need for blended learning: combining the best of face to face and online experience.



## ACTIVE LEARNING

**An active learning environment addresses more modern pedagogy that requires students to be more engaged in the learning process in lieu of more traditional models where students are passive participants.**



## **Learning Skills**

- Collaboration
- Creativity
- Critical thinking
- Problem solving

## **Literacy and Life Skills**

- Media and Technology Literacy
- Adaptability and Leadership
- Cultural sensitivity

**HIGHER LEVEL THINKING SKILLS**





- Project Based Learning
- Lectures
- Small and Large Group Activities
- Individual Learning
- Collaboration by both Teachers and Students

**ACCOMMODATES VARYING ACTIVITIES**

# 02

## DESIGN ELEMENTS THAT BENEFIT ACTIVE LEARNING

Overview of design elements that benefit active learning in a Blended Environment.

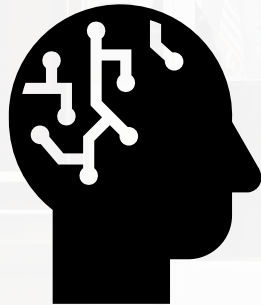
- Variety of Spaces
- Transparency
- Transitional Zones
- Sense of Place
- Areas of Refuge
- Mobility



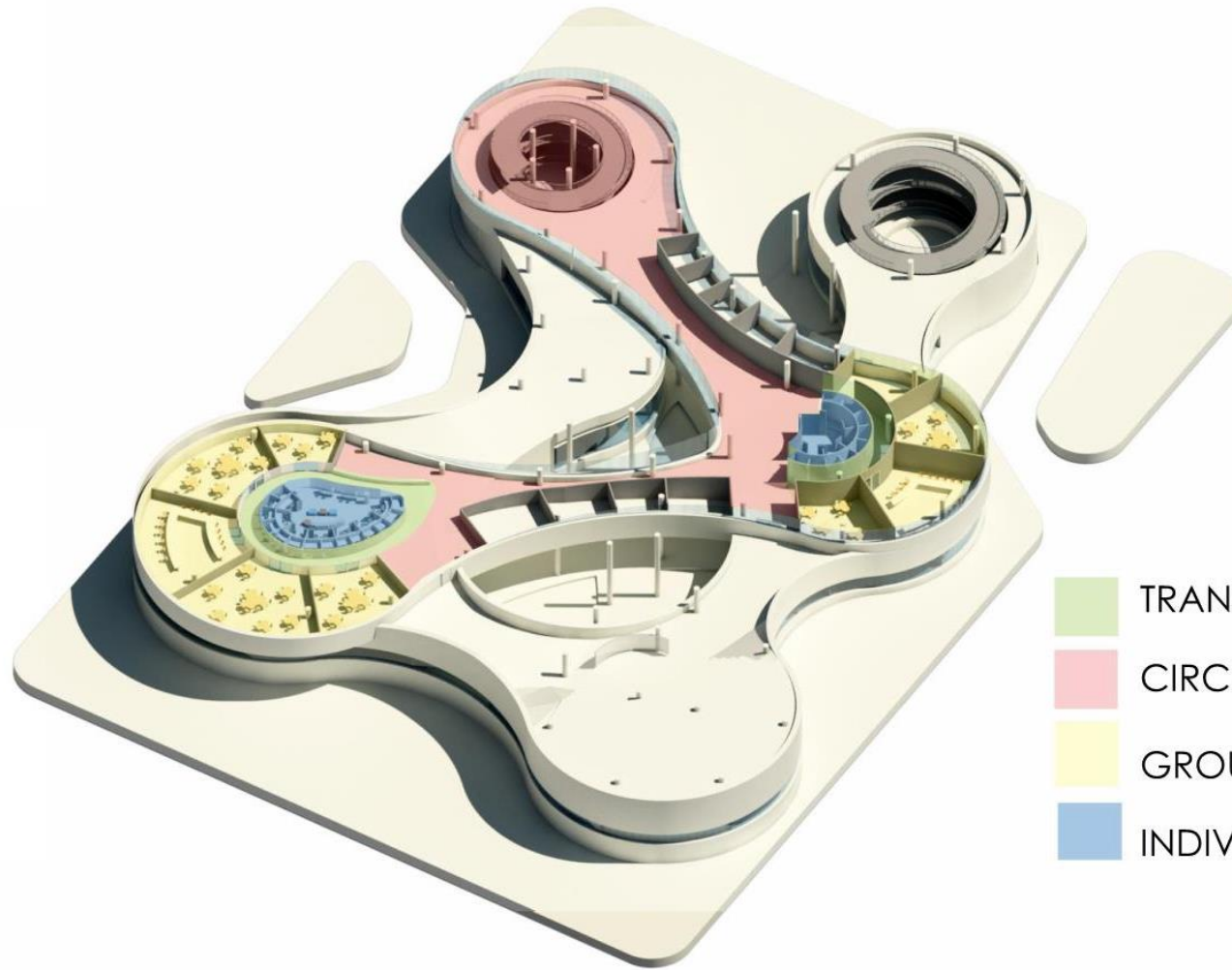
ATTRIBUTES OF ACTIVE LEARNING ENVIRONMENTS



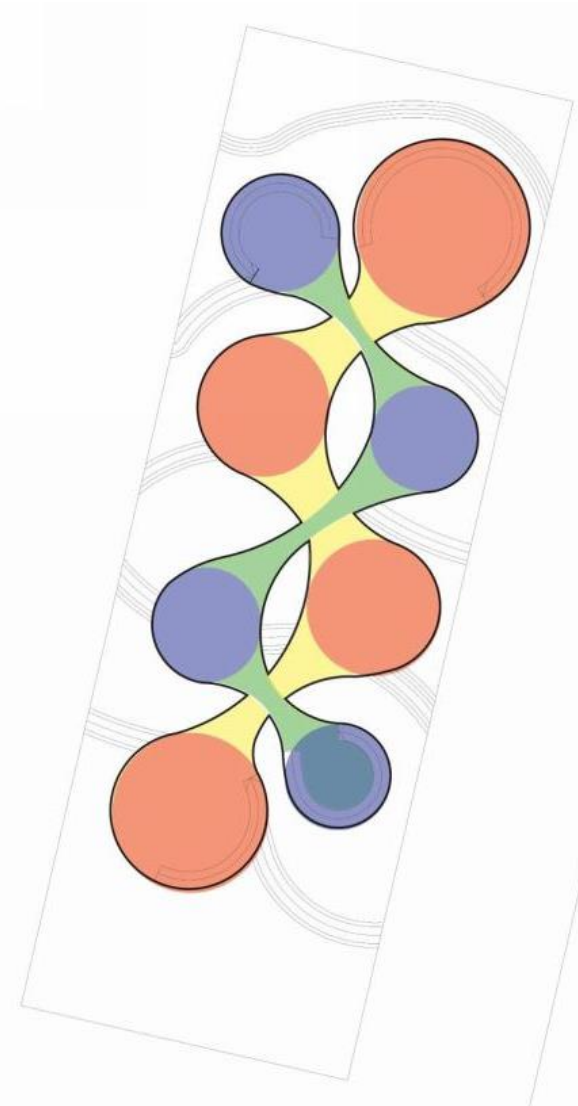
- Sensory opportunities allow us to **develop a frame of reference**
- Improve our **ability to move around** in a space
- Recognizing landmarks or environmental patterns with **wayfinding**
- **Transparency**



## COGNITIVE MAPPING



- TRANSITION ZONE
- CIRCULATION
- GROUP LEARNING
- INDIVIDUAL LEARNING



# TRANSITIONAL ZONES

University of Texas | School Studio  
Final Project on Universal Design by Melissa Gonzalez





A SENSE OF PLACE



- Quiet retreat area: cave like nooks with great acoustics to reduce noise transfer
- Comfortable reading space

## AREAS OF REFUGE





**FURNITURE CREATED SPACES**





- Easily moveable components
- Individual and group desks
- Individual chairs for structured and focused study
- Variety
- Curved and irregular shapes

# MOBILITY







- Proper Lighting and Lighting Controls
- Daylighting and Views
- Enhanced Acoustics
- Flexible Furniture
- Technology ensuring engagement and visibility

## DESIGN ELEMENTS IN A BLENDED ENVIRONMENT





**LIGHTING AND VIEWS**



# 03

## ACOUSTIC CONCEPTS

Dive deeper into acoustic concepts that can be implemented in an active learning environment.

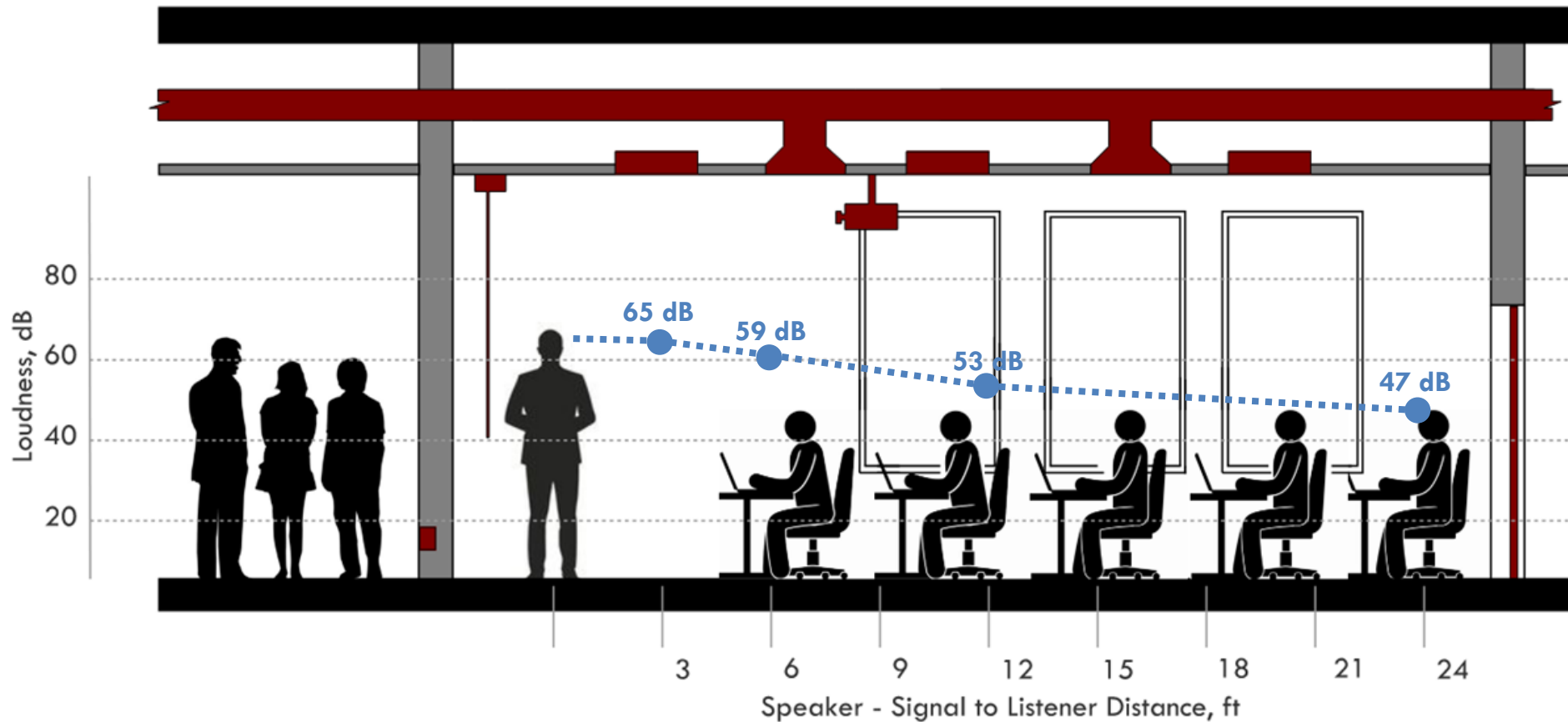




## ACOUSTIC CONCEPTS

### US STATISTICS - SCHOOL AGE STUDENTS

- 15% Low or high frequency hearing loss in one or both ears
- 20% Learning or attention issues
- 5% Auditory Processing Disorder (APD)
- 12% Noise-Induced Hearing Loss
- 21% English Language Learners
- 15% (est.) Temporary Hearing Loss due to Ear infections or Cold / Allergies on any given day



## Inverse Square Law

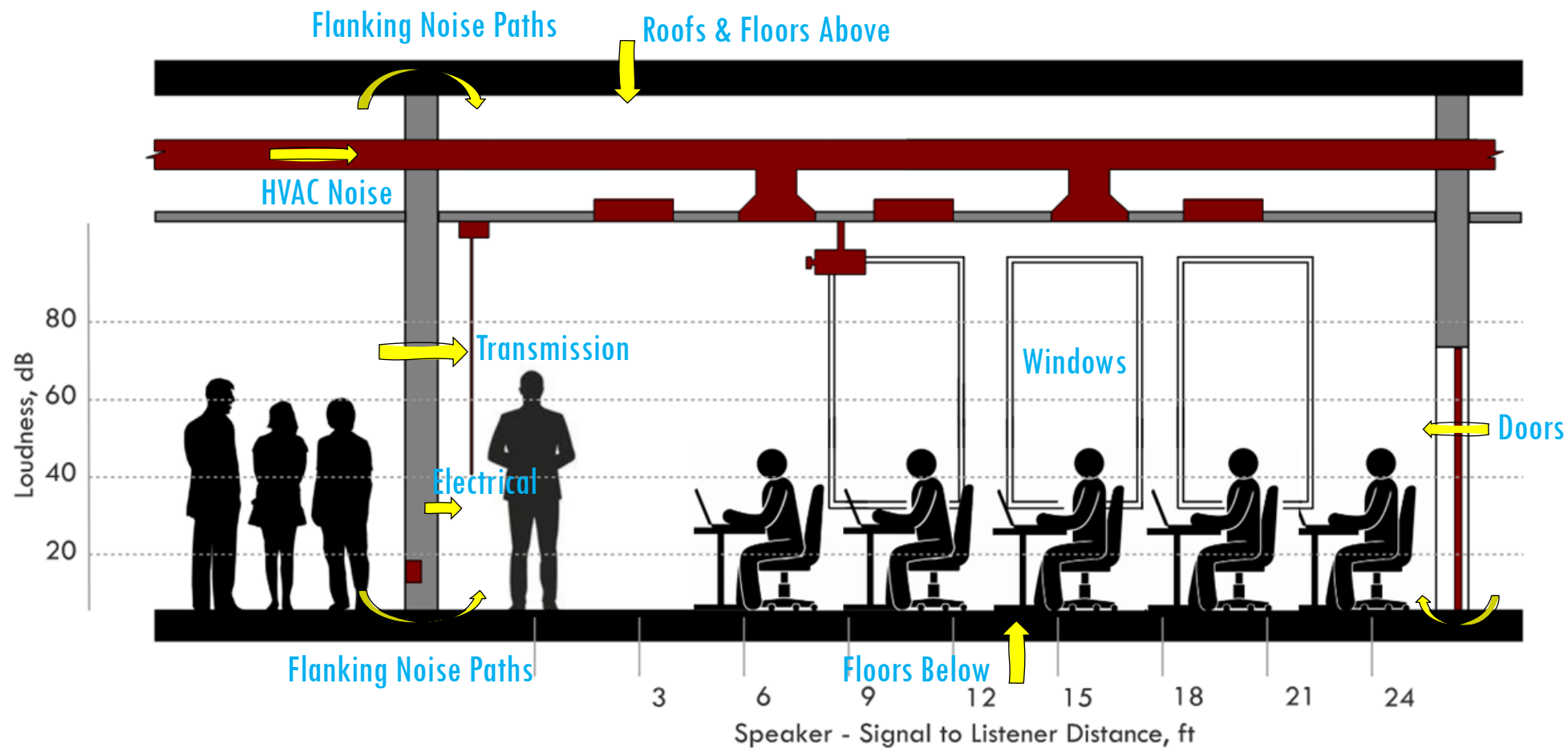
### Perceived Loudness

3 dB Barely Noticeable

6 dB Noticeable

**10 dB Half Reduction**

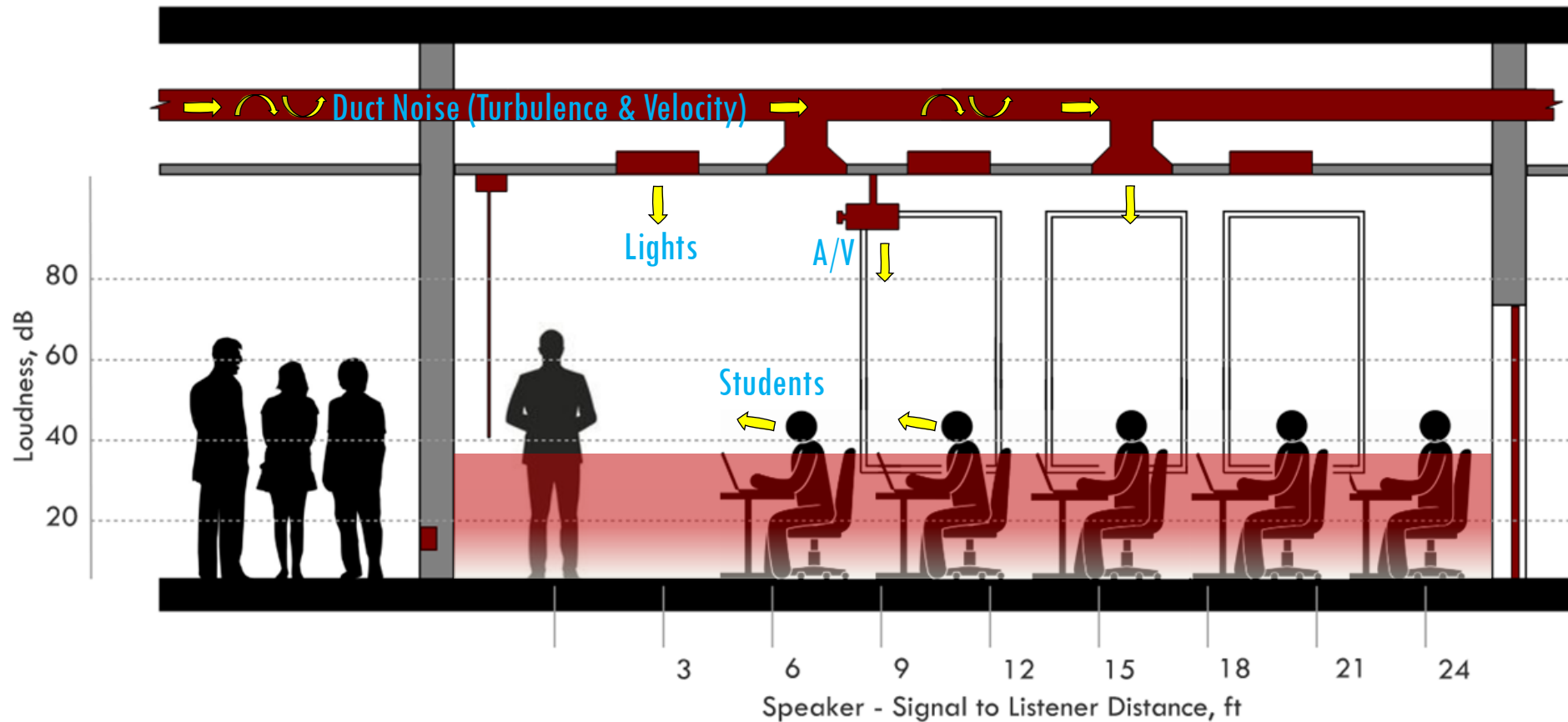
20 dB Significant Reduction



## Outside Noise

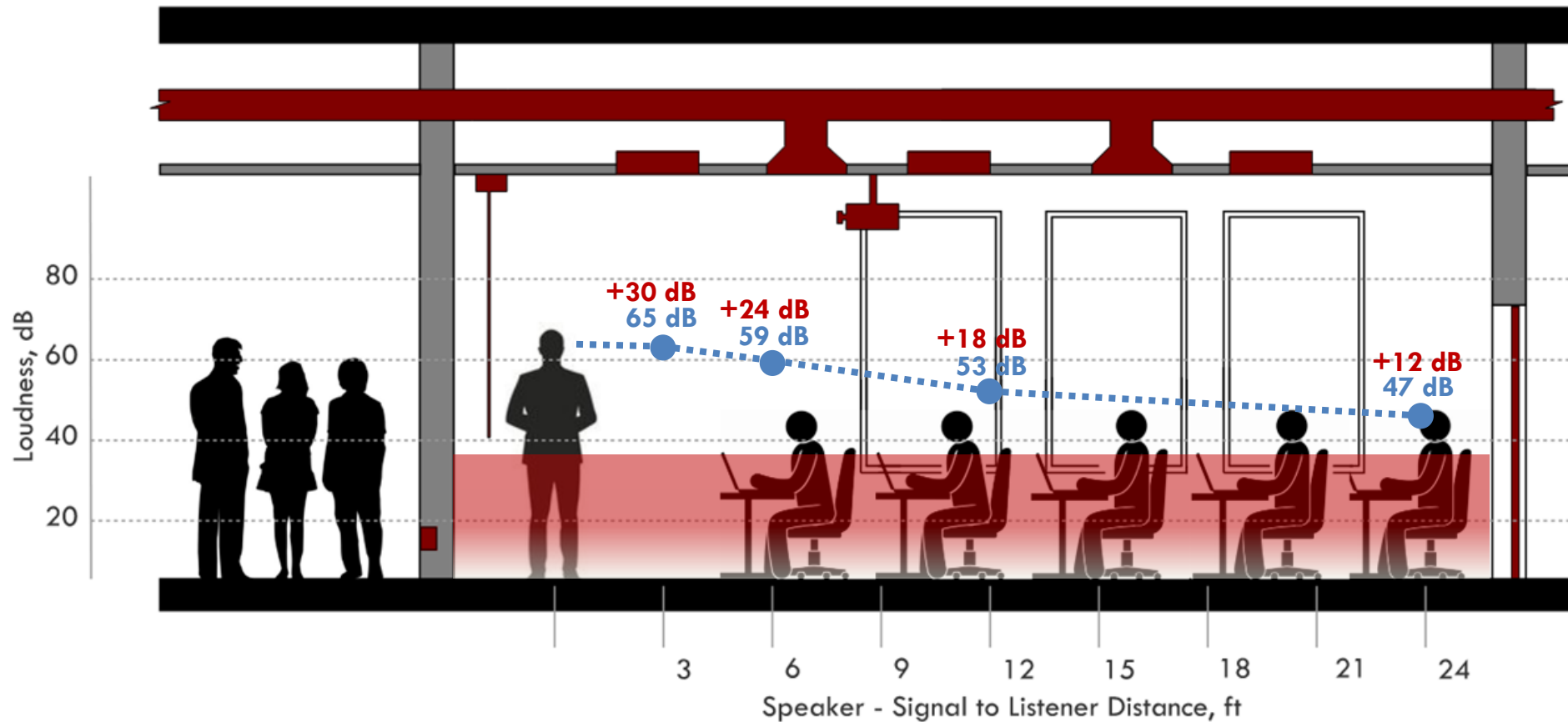
- Exterior
- Adjacent Rooms
- HVAC Systems





## Background Noise

- HVAC
- Local Sources
- Electrical
- AV Systems
- **ANSI & LEED – 35 Db**
- **CHPS – 45 dB (with HVAC running)**



## Signal to Noise Ratio

**SIGNAL TO NOISE RATIO**  
**+10 to +15 dB**

COMBINED WITH LOW  
REVERBERATION TIMES  
(0.3 – 0.6 seconds) FOR

**GOOD SPEECH  
INTELLIGIBILITY**

- IMPROVED LEARNING AND TEST SCORES
- MORE EFFECTIVE INSTRUCTION
- REDUCED INSTRUCTOR "VOICE FATIGUE"



# 04

## FURNITURE CONCEPTS

Review various furniture applications and variations that benefit active learning environments.



**IN-BETWEEN SPACE**





**IN-BETWEEN SPACE**





**IN-BETWEEN SPACE**





**IN-BETWEEN SPACE**





## K5 CLASSROOM

Image from VS America





## K5 CLASSROOM

Image from VS America





**MUTLI-PURPOSE**





**FLIPPED AND FLEXIBLE**



**AR/VR TECH SPACE**





**LEARNING LAB**





**IMPACT ON PROGRAM**



# 05

## TECHNOLOGY

Learn how to design your campus to implement technology that is flexible and addresses the blended learning environments of the future.



**BLENDED LEARNING**





CABLING





**OCCUPANT MANAGEMENT**





**COMMENTS + QUESTIONS?**





## REFERENCES

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