

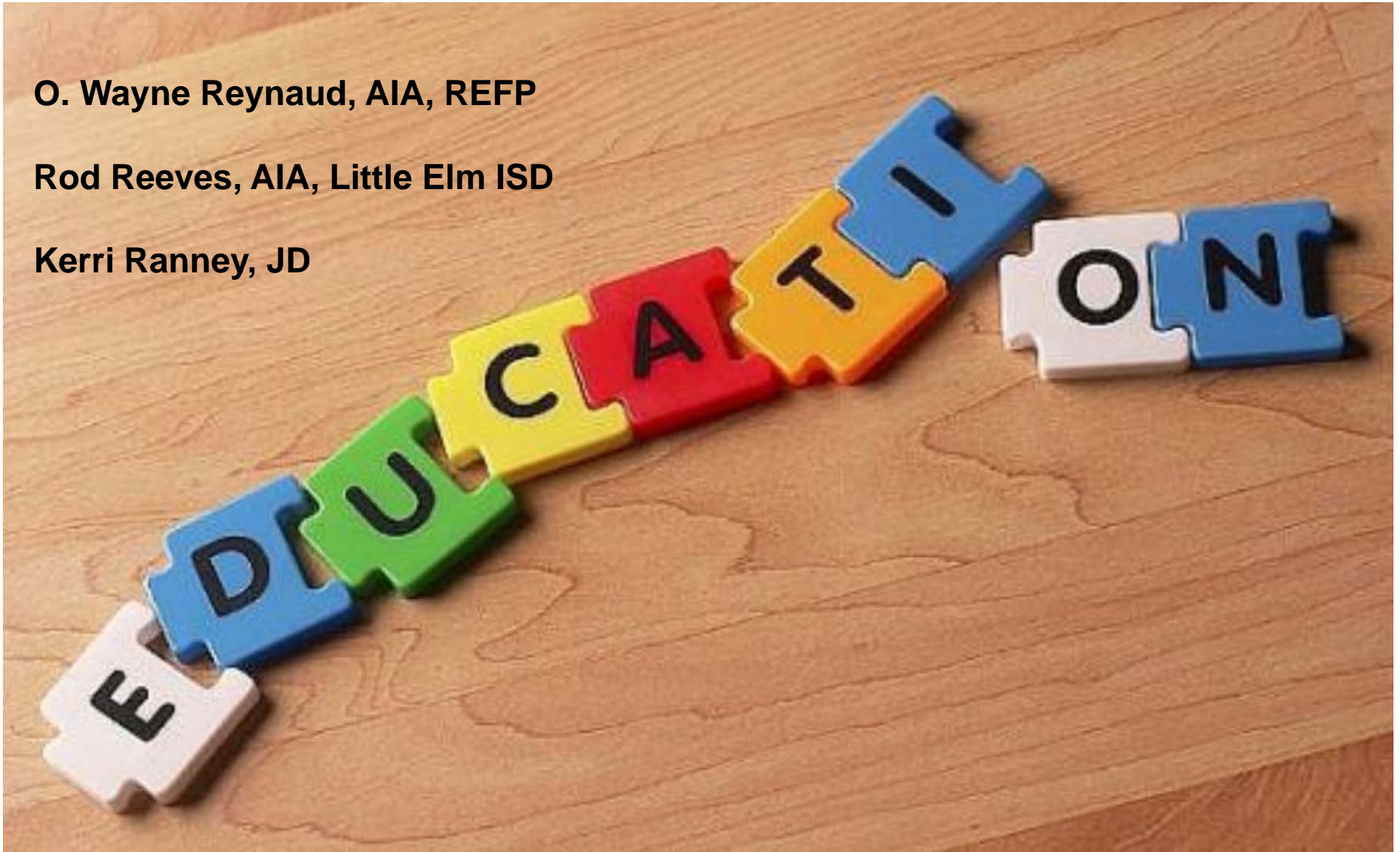


## **Breaking Down Barriers – A Paradigm Shift in Defining Accessibility**

**O. Wayne Reynaud, AIA, REFP**

**Rod Reeves, AIA, Little Elm ISD**

**Kerri Ranney, JD**





# AGENDA

Introduction

What is Accessibility?

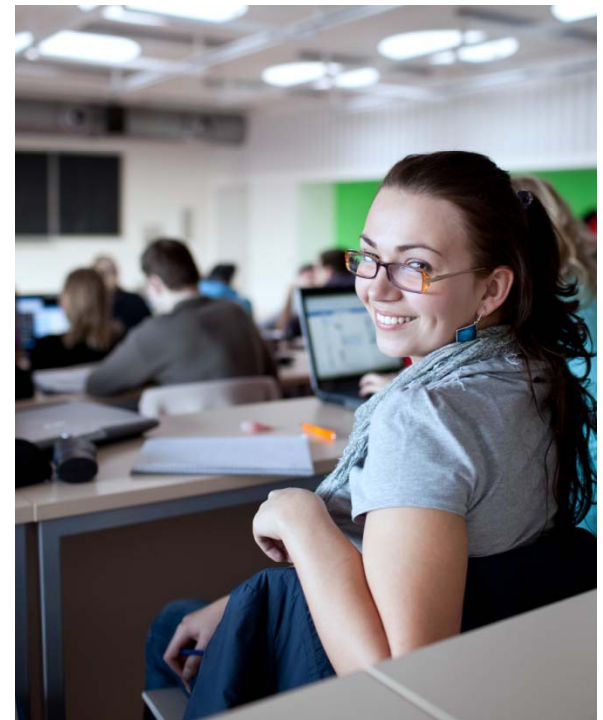
Acoustical Access

Visual Access

Teaching and Learning Styles

Technology & Media Integration

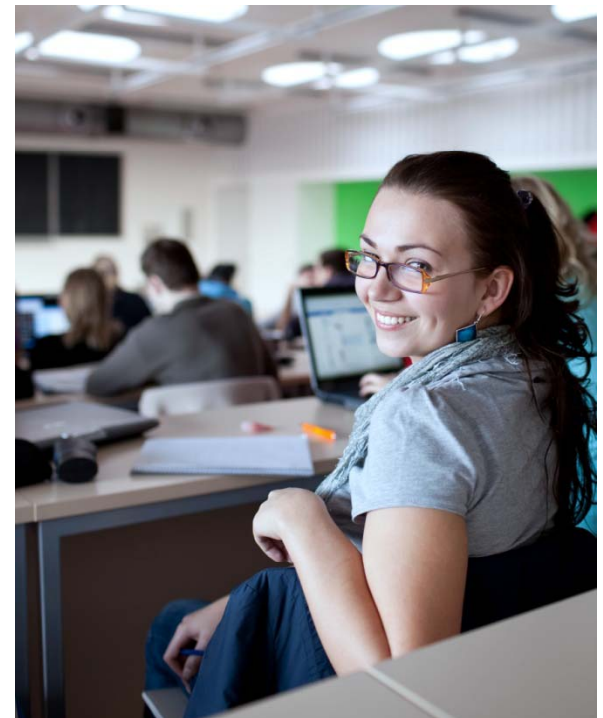
Discussion/Questions





## GOALS

1. Define Accessibility in the Classroom as an Educational Need and not a Building Code
2. Understand all of the Access needed in order for a student to achieve success
3. Discuss How the Built Classroom Environment effects the Access to Education for EVERY student
4. Discuss How the Teaching and Learning Styles employed effect Access to Education for EVERY student
5. Achieve the School District Mission, of not simply Educating Students.....



## WHAT DO YOU WANT FOR YOUR STUDENTS



For All Students to Learn, Grow & Succeed

Provide All Students with an Excellent Education

For Students, Staff and Community to Design & Implement a Learning Organization that provides engaging, innovative Experiences every day

We Will Educate and Inspire Everyone to Achieve Excellence

## WHAT DO YOU WANT FOR YOUR STUDENTS

LEADERS

HEALTHY

CONTRIBUTORS TO SOCIETY

FACILITATORS

GOOD TEAM MEMBERS



## WHAT IS ACCESSIBILITY?



## WHAT IS ACCESSIBILITY?



1. Physical Barriers
2. Acoustical Barriers
3. Visual Barriers
4. Educational Barriers
5. Social Barriers

## WHAT IS ACCESSIBILITY?

Educational Facilities must meet a multitude of Challenges

- Social Need
- Educational Need
- Physical Need





## WHAT IS ACCESSIBILITY?

Educational Facilities must house a multitude of end users

- Students
- Teachers
- Parents
- Administrators
- Security Officers





## WHAT IS ACCESSIBILITY?



### 1. Physical Barriers

- a) The American with Disabilities Act  
ADA
- b) Texas Department Of Licensing and  
Regulations – TDLR
- c) State and Local Building Codes
- d) Compliance

## WHAT IS ACCESSIBILITY?



**Accessible  
Paths of Travel**



### Physical Barriers

- a) Accessible Parking
- b) Accessible Sidewalk Routes
- c) Accessible Entrances
- d) Path of Travel inside Building
- e) Rest Rooms
- f) Doors to every room

## YOU GOT ME IN THE CLASSROOM – NOW WHAT?



Teach Me Something

## WHAT IS ACCESSIBILITY?

Accessibility is not ONLY about getting students into Classrooms.....

.....It is about getting Education into Students

EVERY STUDENT



## WHAT IS ACCESSIBILITY?



1. Educational “Barriers” (We prefer Challenges)
  - a) Individualized Education Program IEP
  - b) Admission Review Dismissal ARD
  - c) Collaboration = Success
  - d) No Child Left Behind
  - e) Compliance?

## WHAT IS ACCESSIBILITY?



WHAT IS GOOD FOR THE FEW WILL  
HELP THE WHOLE GROUP

## WHAT IS ACCESSIBILITY?



1. Teaching Challenges
  - a) Teacher Accountability
  - b) Student Accountability
  - c) Benchmark Testing
  - d) Student Achievement



## ACCOUSTIC ACCESSIBILITY





## ACOUSTIC ACCESSIBILITY



The importance of Acoustic Accessibility  
in the Classroom

Hearing Instruction is the first wave of  
students accessibility to their Learning

## ACOUSTIC ACCESSIBILITY

The importance of Acoustic Accessibility in the Classroom

As much as 80% of what students learn is provided by the teacher's spoken communication



## ACOUSTIC ACCESSIBILITY

The ability to hear clearly is blocked in many classrooms by “barriers” created by a multitude of factors



## ACOUSTIC ACCESSIBILITY

The importance of Acoustic Accessibility in the Classroom

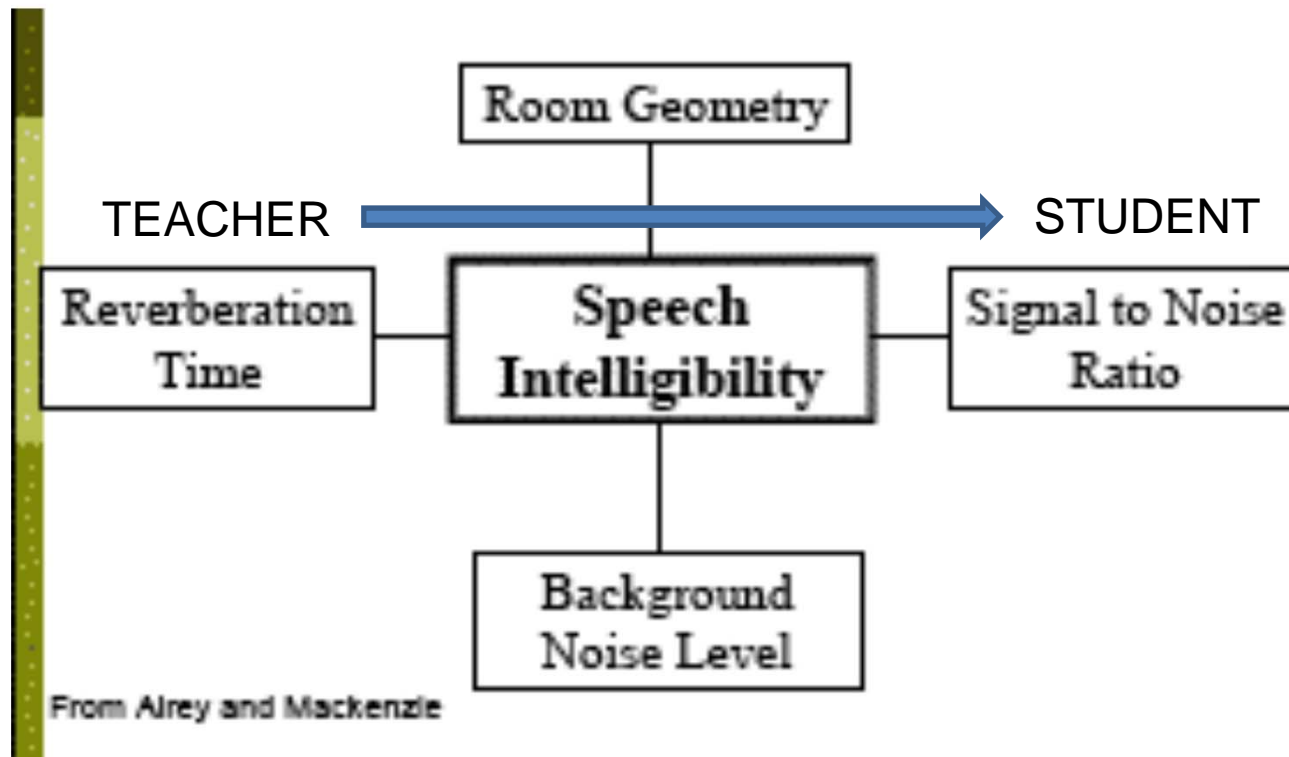
FACTORS THAT EFFECT SPEECH INTELIGIBILITY (ACCESSIBILITY)

- Ambient Noise
- Distance sound has to Travel
- Shape of Classroom (geometry)
- Reverberation
- The Student
- The Teacher



## ACOUSTIC ACCESSIBILITY

### Factors Affecting speech intelligibility





## ACOUSTIC ACCESSIBILITY

### The importance of Acoustic Accessibility in the Classroom – The Essex Study

- The study took place at Sweyne Park school, involved 400 students and 13 teachers and was carried out by Essex County Council.
- The teachers and students were asked to test four classrooms: three acoustically treated rooms and one untreated control room.
- The researchers quickly found that a good acoustic environment had additional benefits such as a dramatic improvement in student behavior.
- The teachers were also able to let students work in groups, something that had previously been impossible and the staff reported that they had fewer voice and throat problems.

## ACOUSTIC ACCESSIBILITY



### The importance of Acoustic Accessibility in the Classroom

- Students in schools with high levels of outside noise scored 20% less in reading
- High noise levels influence verbal interaction, reading comprehension and cognitive task success

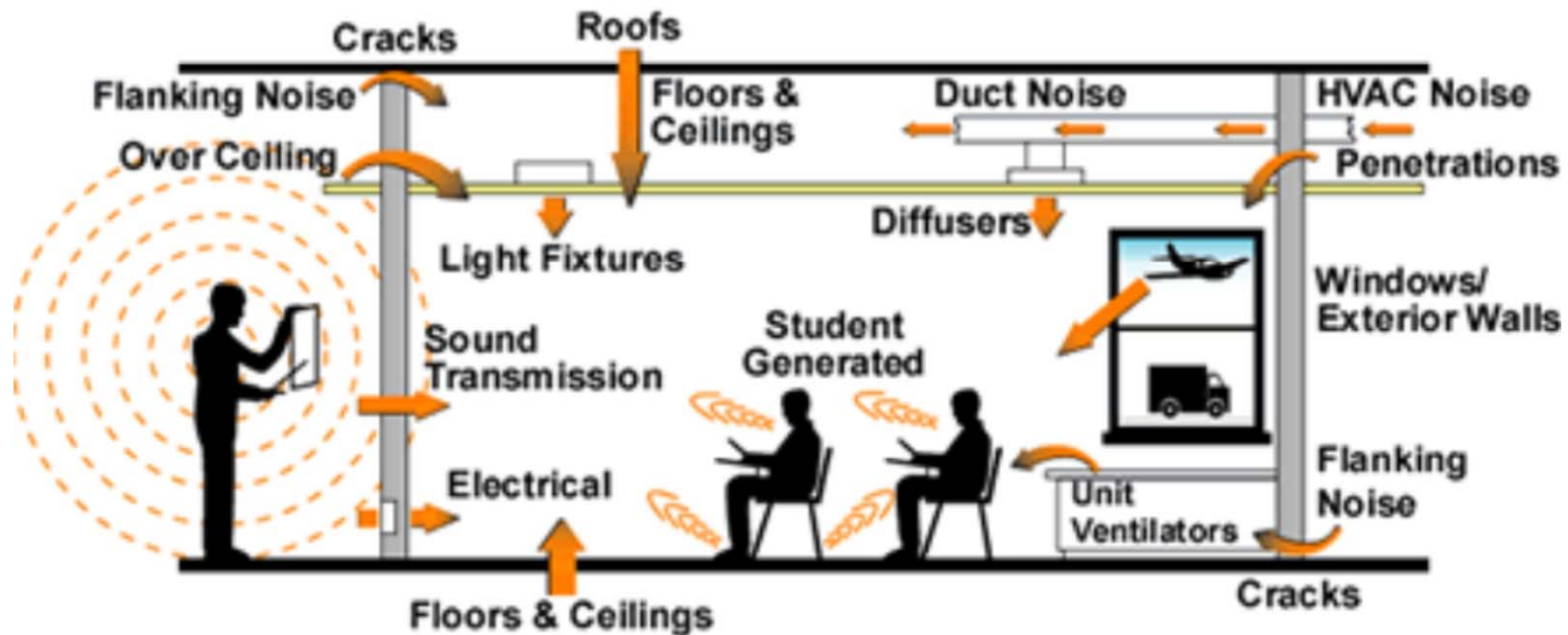


## ACOUSTIC ACCESSIBILITY

The importance of Acoustic Accessibility in the Classroom

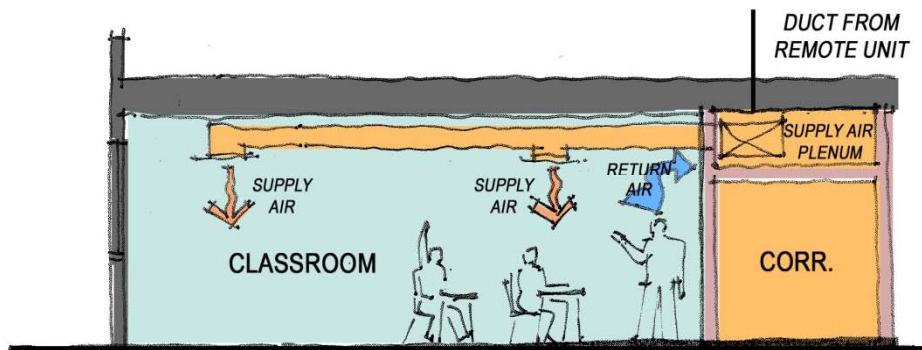
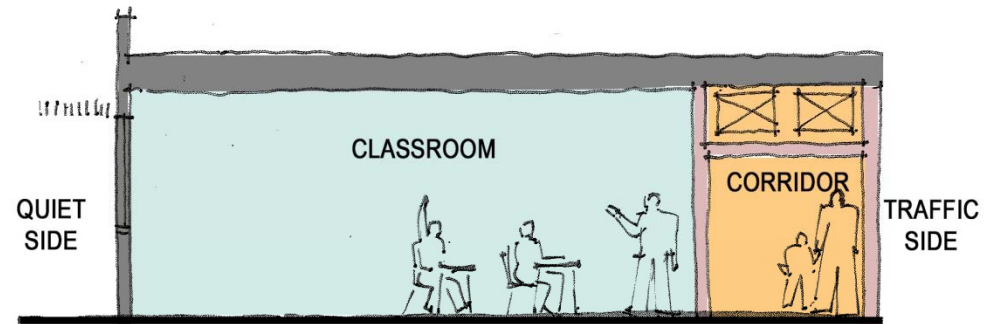
### AMBIENT OR BACKGROUND NOISE LEVEL

Is the totality of all sounds within the room when the room is unoccupied.



## ACOUSTIC ACCESSIBILITY

Some noise must exist for certain systems to operate



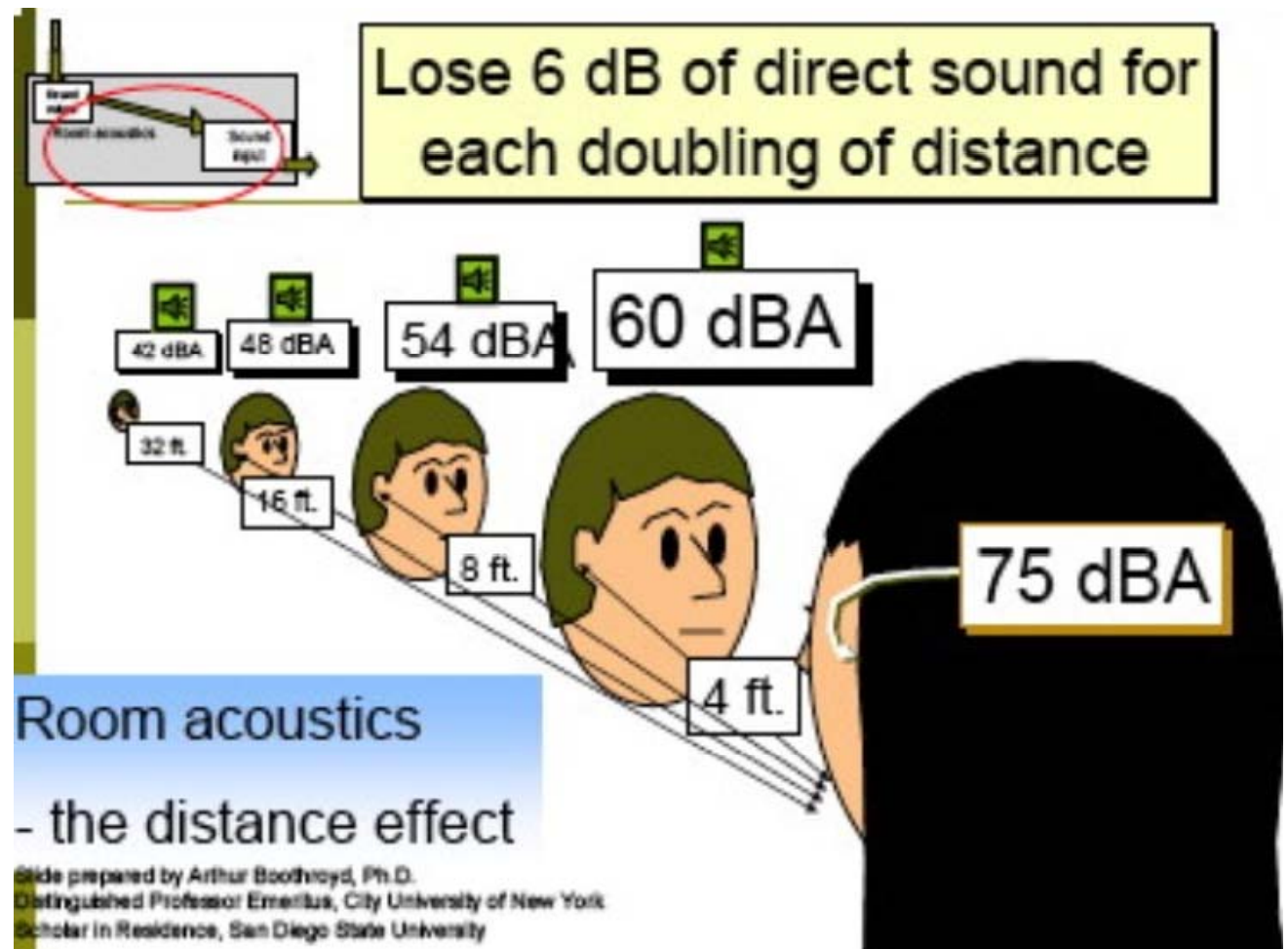
Control the Noise that you "Create"

## ACOUSTIC ACCESSIBILITY

The importance of Acoustic Accessibility in the Classroom

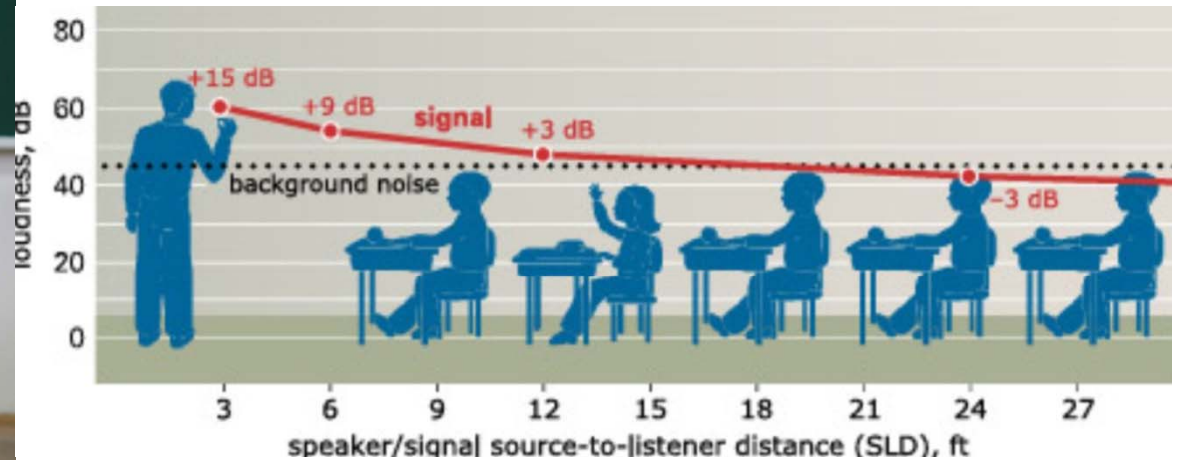
Up to 40% of Audible Information can be “Lost” Over a Distance of 26 feet

**Typical Classroom Dimension from wall to wall**



## ACOUSTIC ACCESSIBILITY

The importance of Acoustic Accessibility in the Classroom

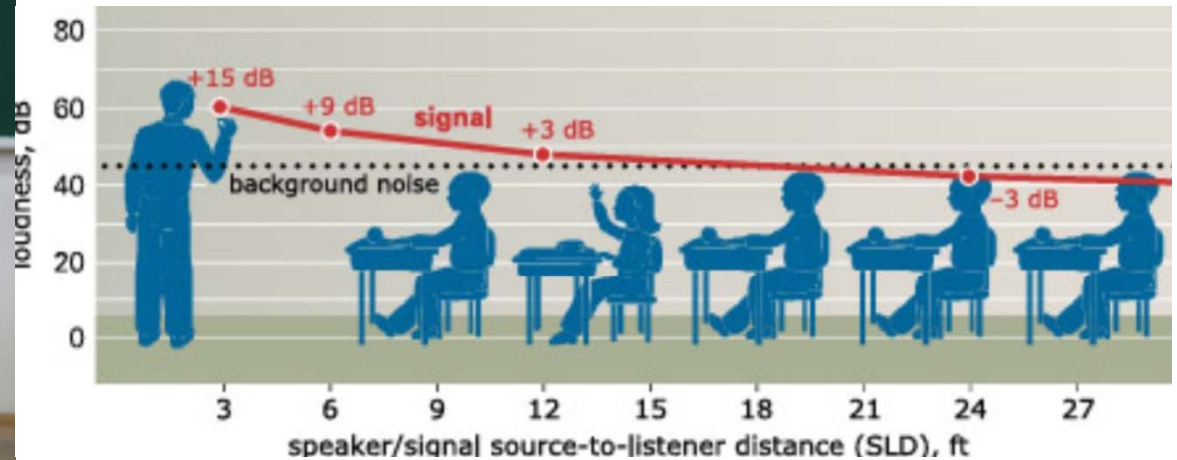


Signal – to – Noise Ratio (SNR) also known as Speech-Noise-Ratio is the relationship between the desired auditory signal to all other unwanted sound.



## ACOUSTIC ACCESSIBILITY

The importance of Acoustic Accessibility in the Classroom



Adults require a SNR of +6db

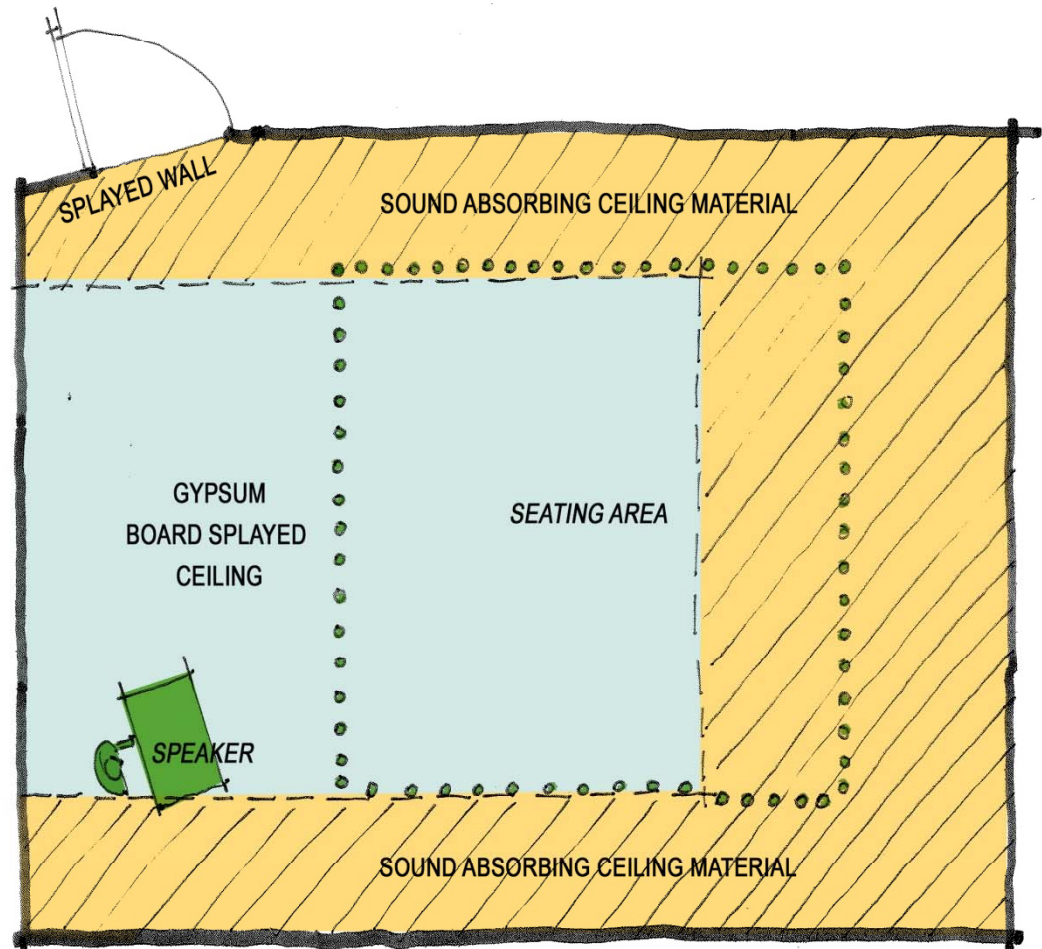
Children require an average SNR of +15db



## ACOUSTIC ACCESSIBILITY

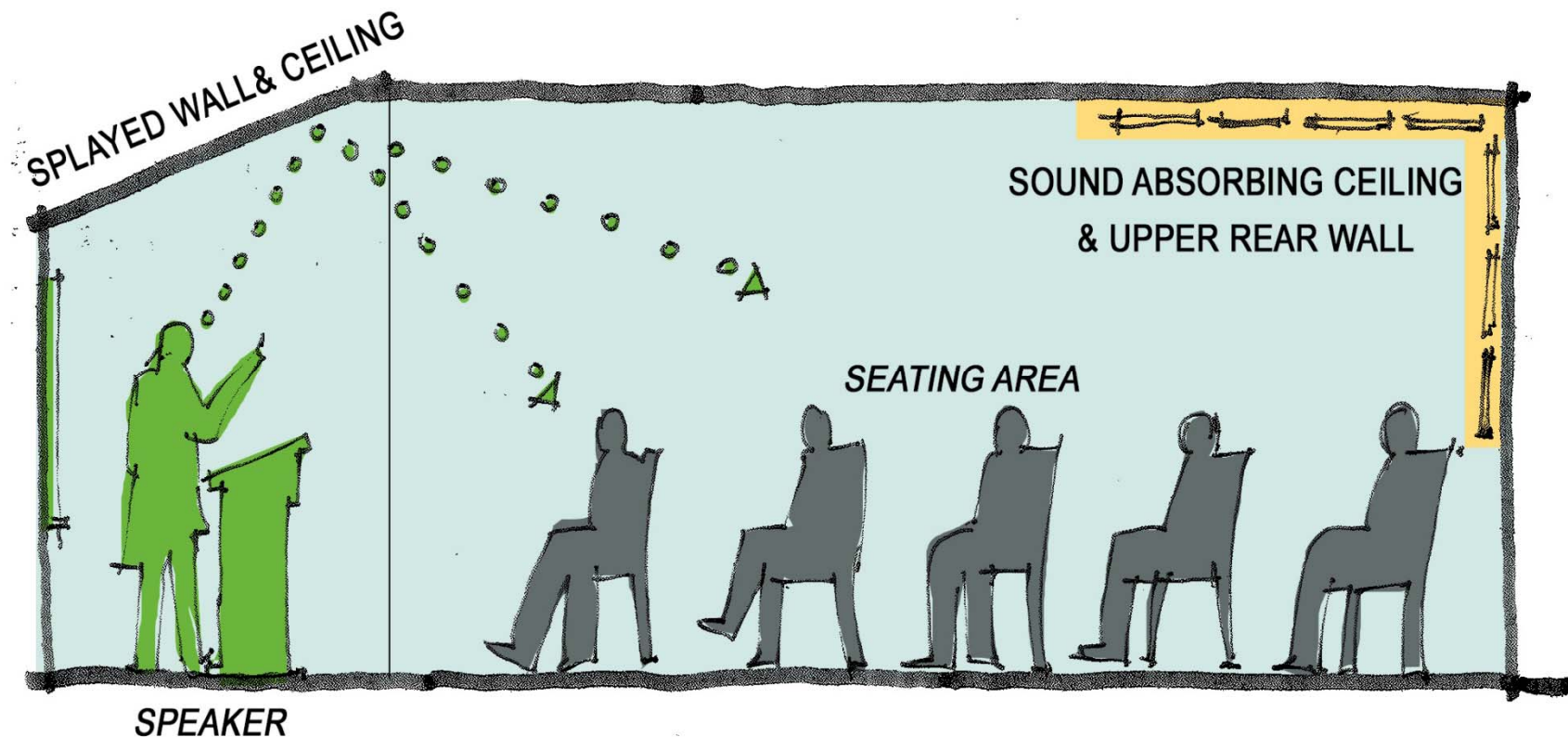
The importance of Acoustic Accessibility in the Classroom

Classroom Geometry  
And Room Finishes  
Can help Acoustic  
Accessibility



## ACOUSTIC ACCESSIBILITY

The importance of Acoustic Accessibility in the Classroom

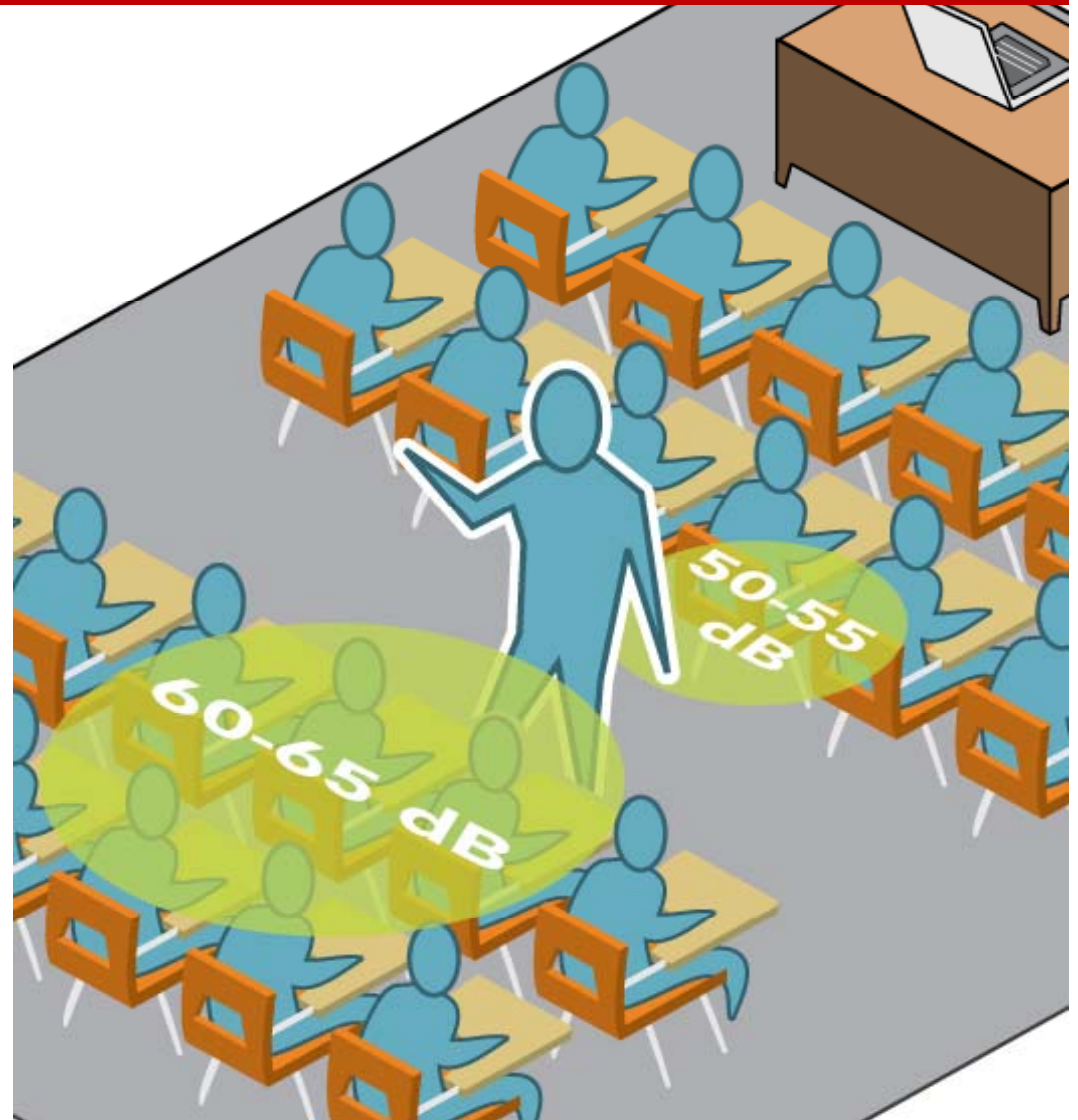


Classroom Geometry And Room Finishes Can help Acoustic Accessibility

## ACOUSTIC ACCESSIBILITY

Summary:

- Reduce Background Noise
- Understand Signal to Noise Ratio
- Reduce Reverberation (STC)
- Use Appropriate Finish Materials
- Technology





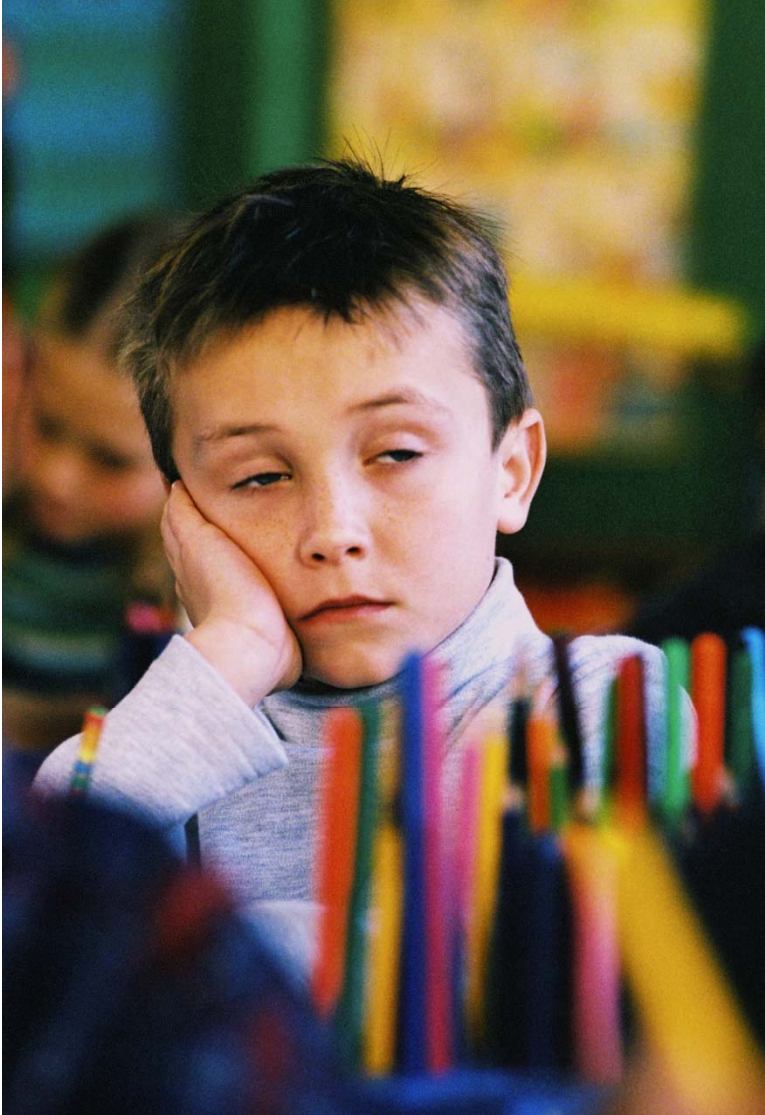
## VISUAL ACCESSIBILITY



## VISUAL ACCESSIBILITY

The importance of Visual Accessibility in the Classroom

The “majority” of students in this generation of technology and change are **Visual Learners**



## VISUAL ACCESSIBILITY



The importance of Visual Accessibility in the Classroom

Visual Learning Style is very effective and popular for teachers to integrate into all curriculum

## VISUAL ACCESSIBILITY

### The importance of Visual Accessibility in the Classroom



Visual Learners best attain information by seeing the information

- Pictures
- Maps
- Graphs
- Video

## VISUAL ACCESSIBILITY



The importance of Visual Accessibility in the Classroom

Visual Learners excel at visualizing all types of information

- Objects
- Plans
- Outcomes (Deductive Logic)
- Spatial Relationships (Ratios)

## VISUAL ACCESSIBILITY

The importance of Visual Accessibility  
in the Classroom

Reinforcement Of Visual Aids

- Interactive (Live) Diagrams
- Visual Queues
- Media
- Books



## VISUAL ACCESSIBILITY

The importance of Visual Accessibility in the Classroom

Visual Aids help Students Process & Retain information **QUICKER**

and the memory “cog” is more “permanent”



## VISUAL ACCESSIBILITY

The importance of Visual Accessibility in the Classroom

Good lighting is a Necessity

- Appropriate lighting improves tests score, reduces off task behavior and plays a significant role in students' achievement
- Higher illumination levels consistently show improved performance on visual tasks.

Natural Lighting is Important – more than 20% improvement in Math and English test scores





## VISUAL ACCESSIBILITY



The importance of Visual Accessibility in the Classroom

Classroom Seating arrangements should allow for Good line of site to

“TEACHING POINT”

no matter where it is – or where it goes

## VISUAL ACCESSIBILITY

Summary:

- Reinforce concepts with Visual Aids
- Good Lighting!
- Flexibility in Classroom Arrangements
- Good Line of Site to all potential “Teaching Points”
- Technology



## TEACHING & LEARNING STYLES



## TEACHING & LEARNING STYLES



### WHAT TYPE OF LEARNER ARE YOU

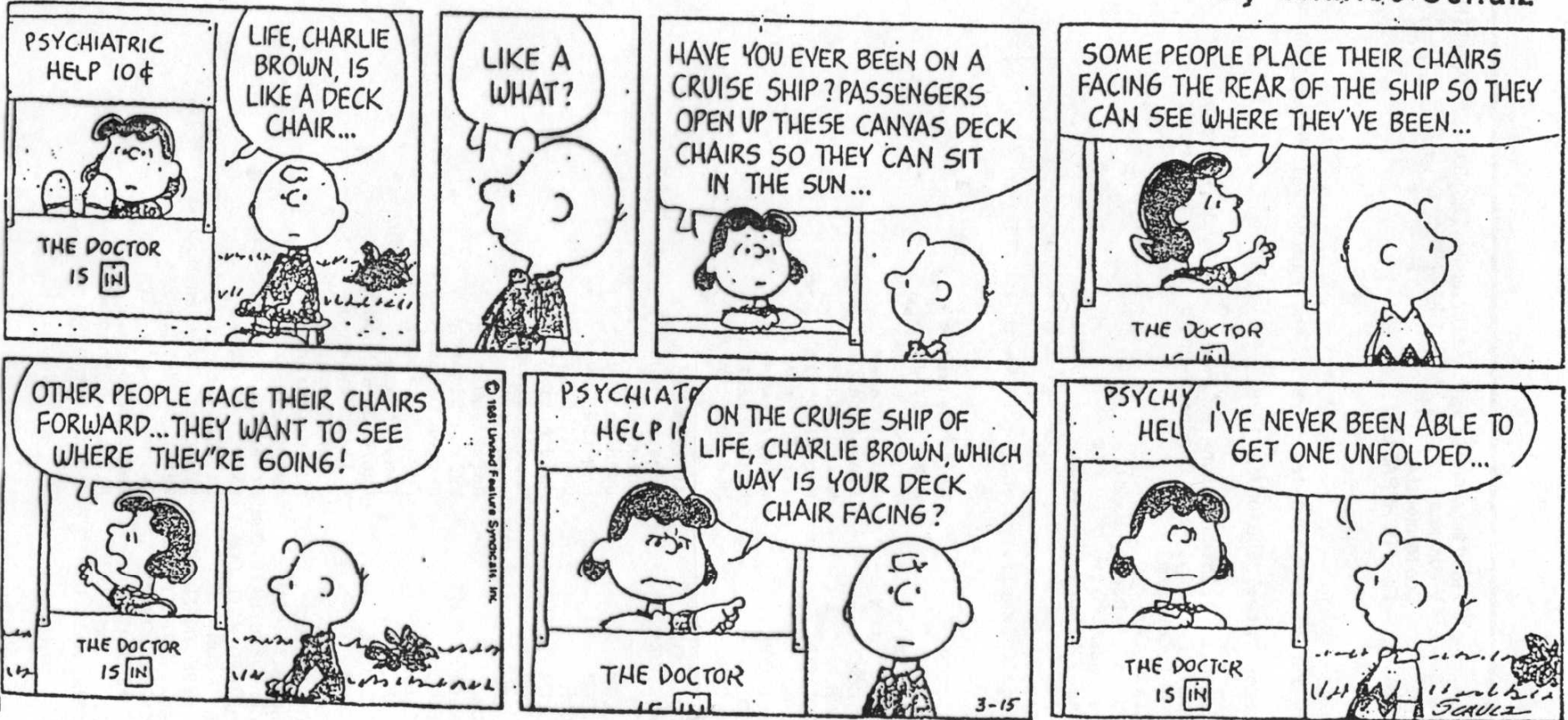
- VISUAL 50%
- AUDITORY 10%
- TACTILE 10%
- KINESTHETIC 30%

TEACHING & LEARNING STYLES

# Which Way is Your Chair Facing

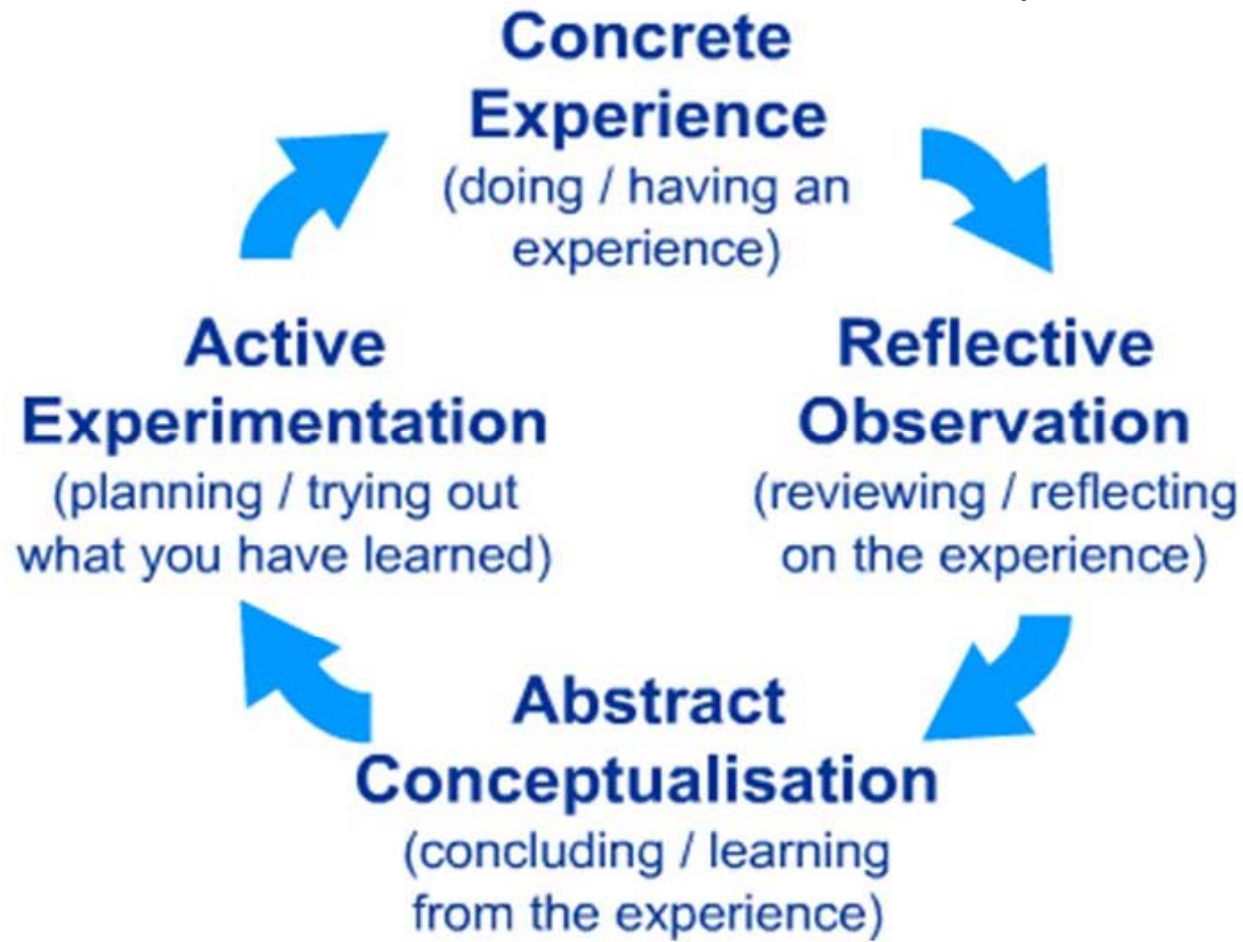
PEANUTS (R)

by Charles Schulz



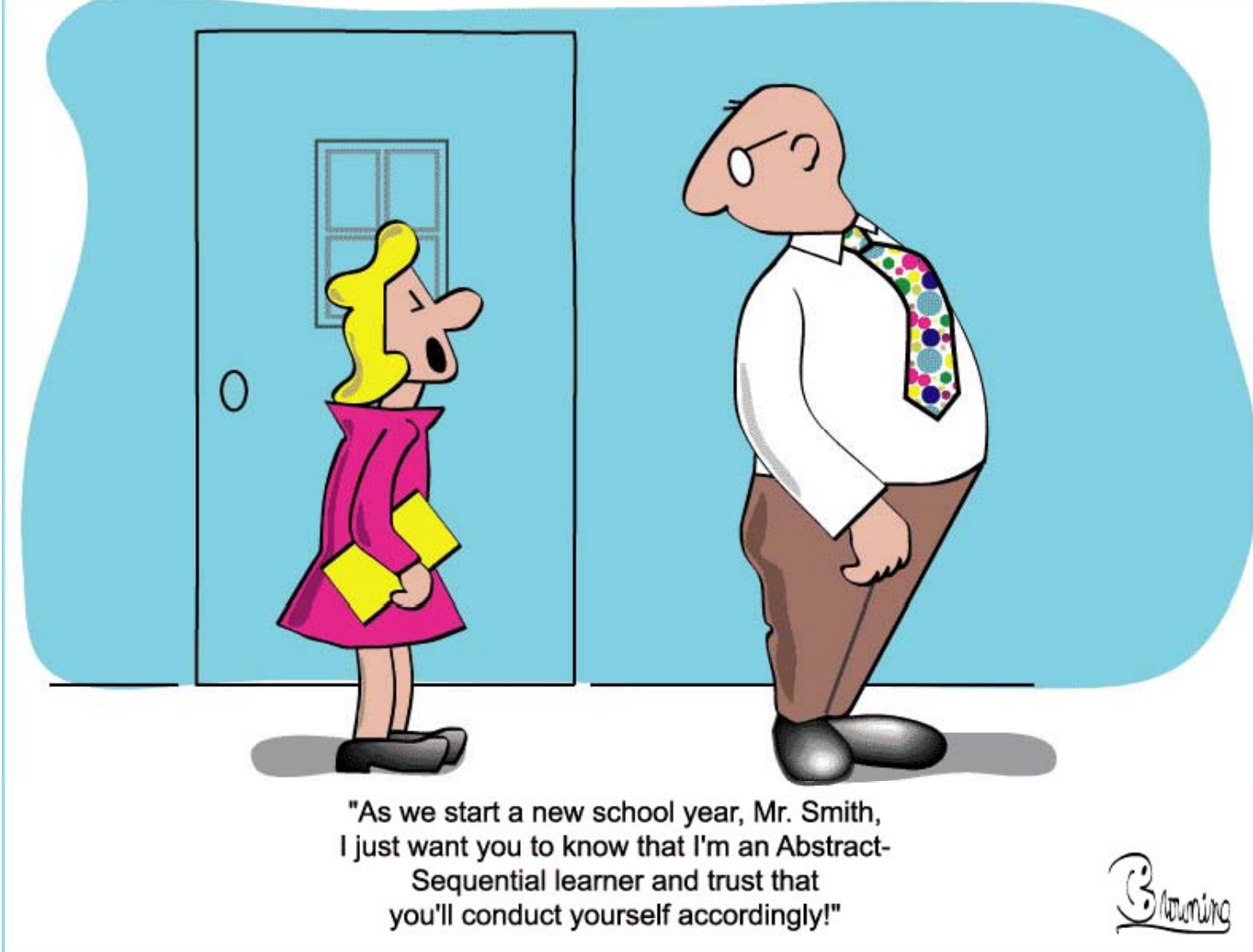
## TEACHING & LEARNING STYLES

The Classroom Environment Students need a variety of Learning “Styles”



Because they have a variety of Learning “Modes”

## TEACHING & LEARNING STYLES



"As we start a new school year, Mr. Smith, I just want you to know that I'm an Abstract-Sequential learner and trust that you'll conduct yourself accordingly!"

Browning

## TEACHING & LEARNING STYLES

The Classroom Environment  
Integrating the Space into the Educational Access





## TEACHING & LEARNING STYLES

### Classroom Components

#### Furniture

Students aged...

- 6-10 can't sit more than 5 minutes on average
- 11-15 can't sit more than 15 minutes on average
- 15-20 can't sit more than 25 minutes on average



## TEACHING & LEARNING STYLES

### Classroom Components Furniture

Students should not spend their entire school day sitting:

- 50% sitting (dynamic sitting on a flexible chair)
- 30% standing
- 20% walking around



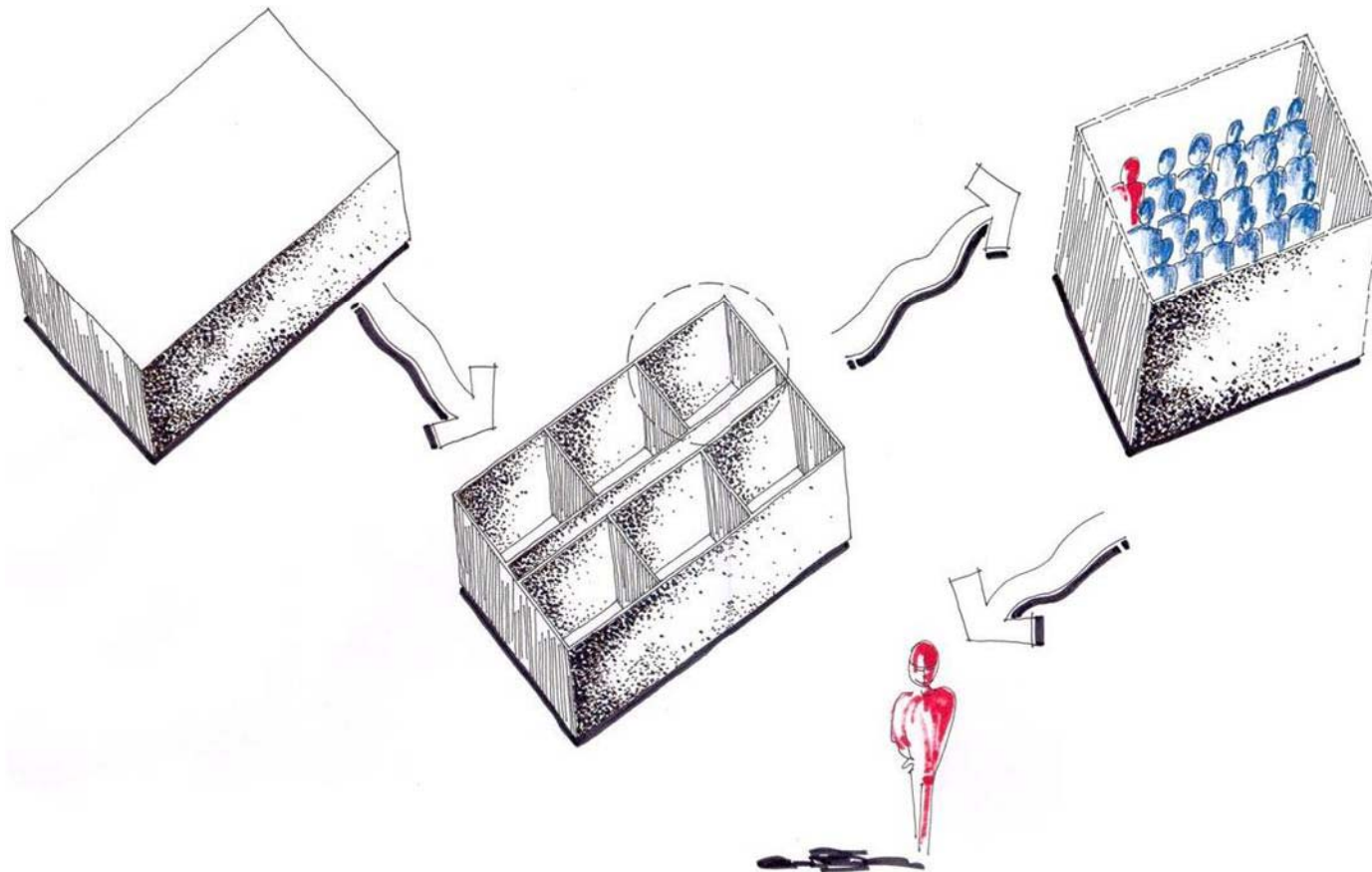
## TEACHING & LEARNING STYLES

### Classroom Components Furniture



# TEACHING & LEARNING STYLES

## Classroom Components Walls & Transparency



# TEACHING & LEARNING STYLES

## Classroom Components

### Walls & Transparency



## TEACHING & LEARNING STYLES

Classroom Components  
Walls & Transparency



## TEACHING & LEARNING STYLES

Classroom Components  
Walls & Transparency



## TEACHING & LEARNING STYLES

### Classroom Components Walls & Transparency





# TEACHING & LEARNING STYLES

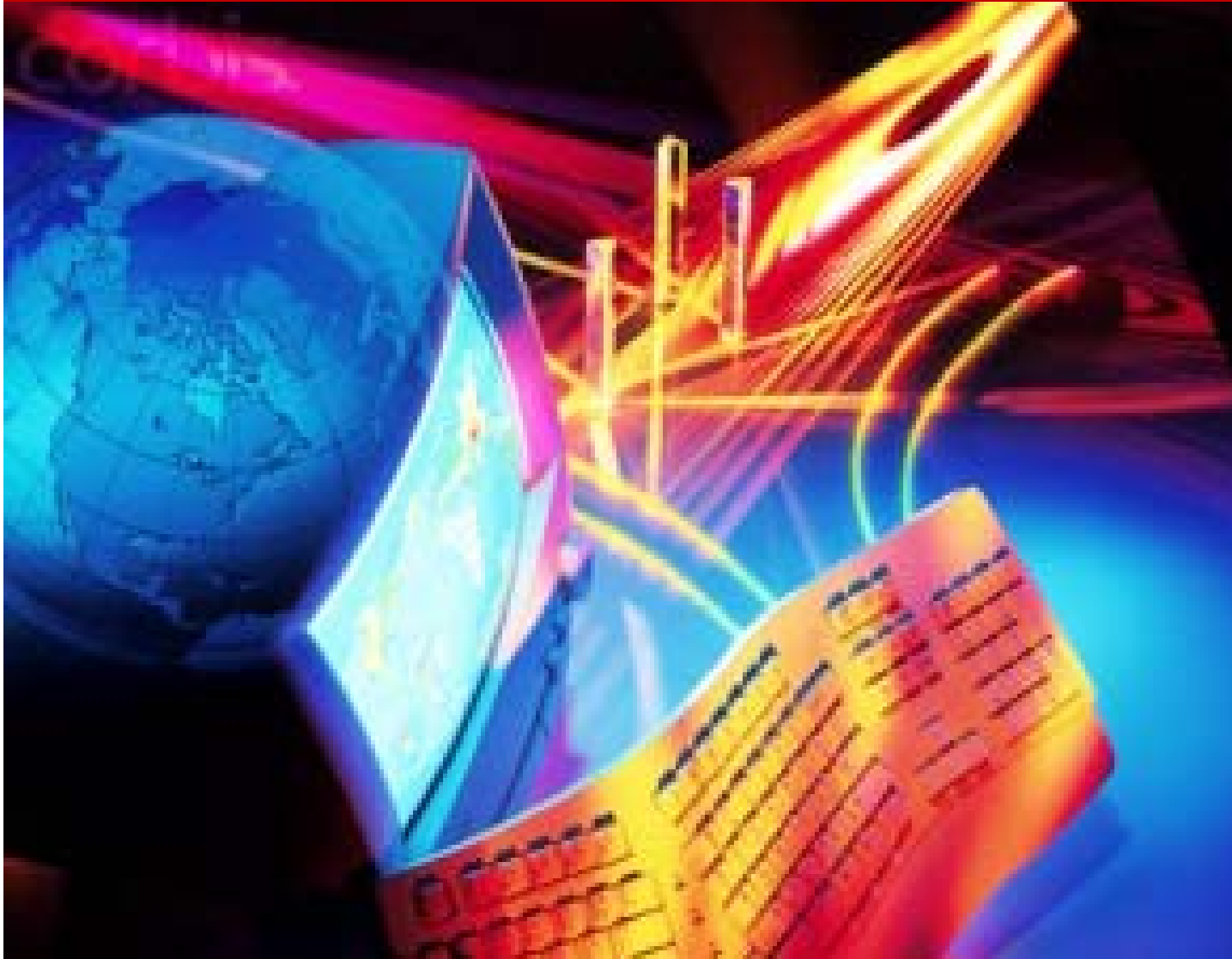


## TEACHING & LEARNING STYLES



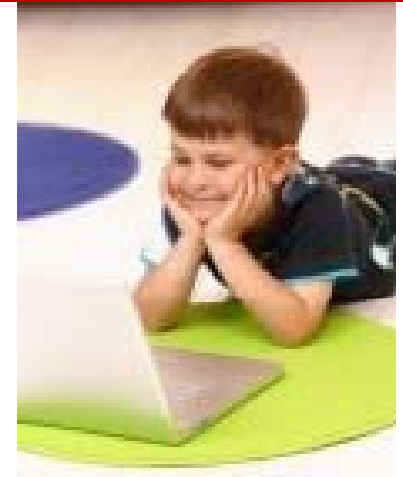


## TECHNOLOGY & MEDIA



# TECHNOLOGY & MEDIA

Classroom Components  
Technology

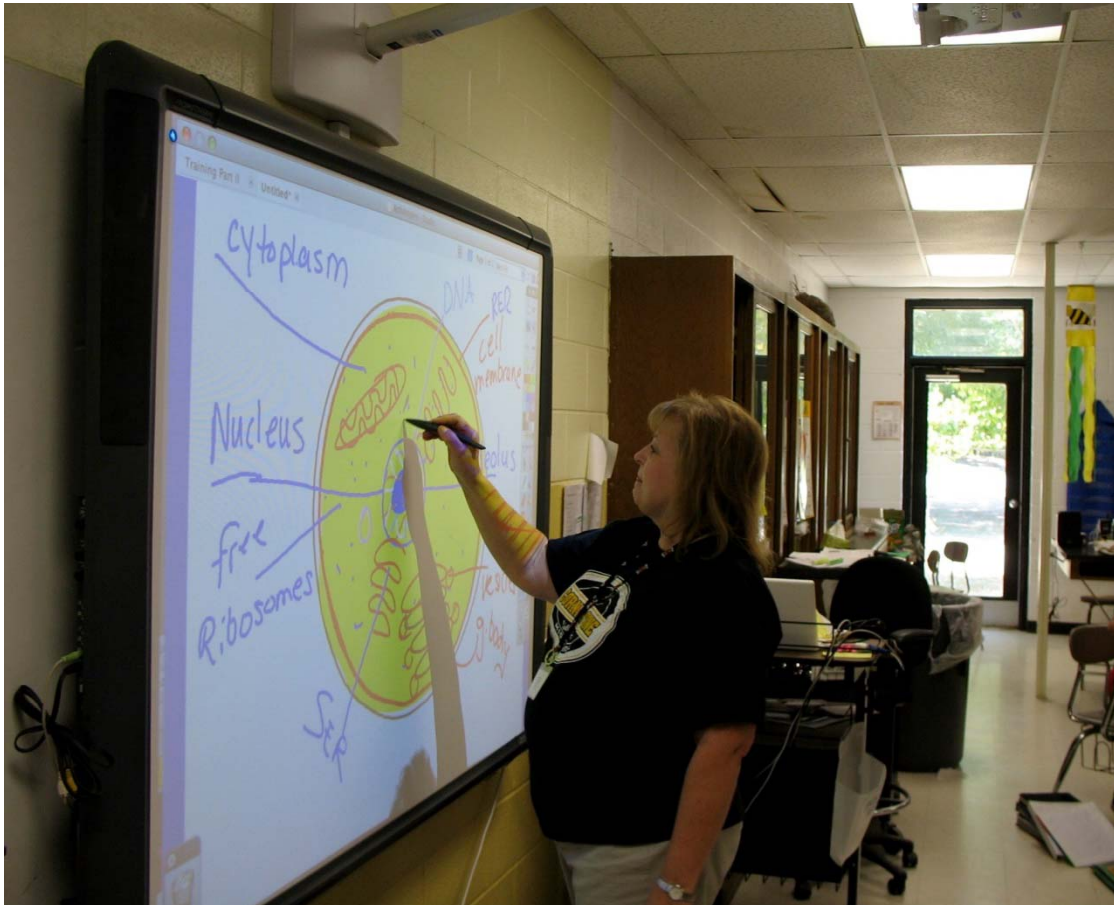


Visual  
Components



## TECHNOLOGY & MEDIA

### Classroom Components Technology



## TECHNOLOGY & MEDIA



### Classroom Components Technology



## TECHNOLOGY & MEDIA

### Classroom Components Technology



Audio  
Components

## TECHNOLOGY & MEDIA

### Classroom Components Technology

Audio  
Components

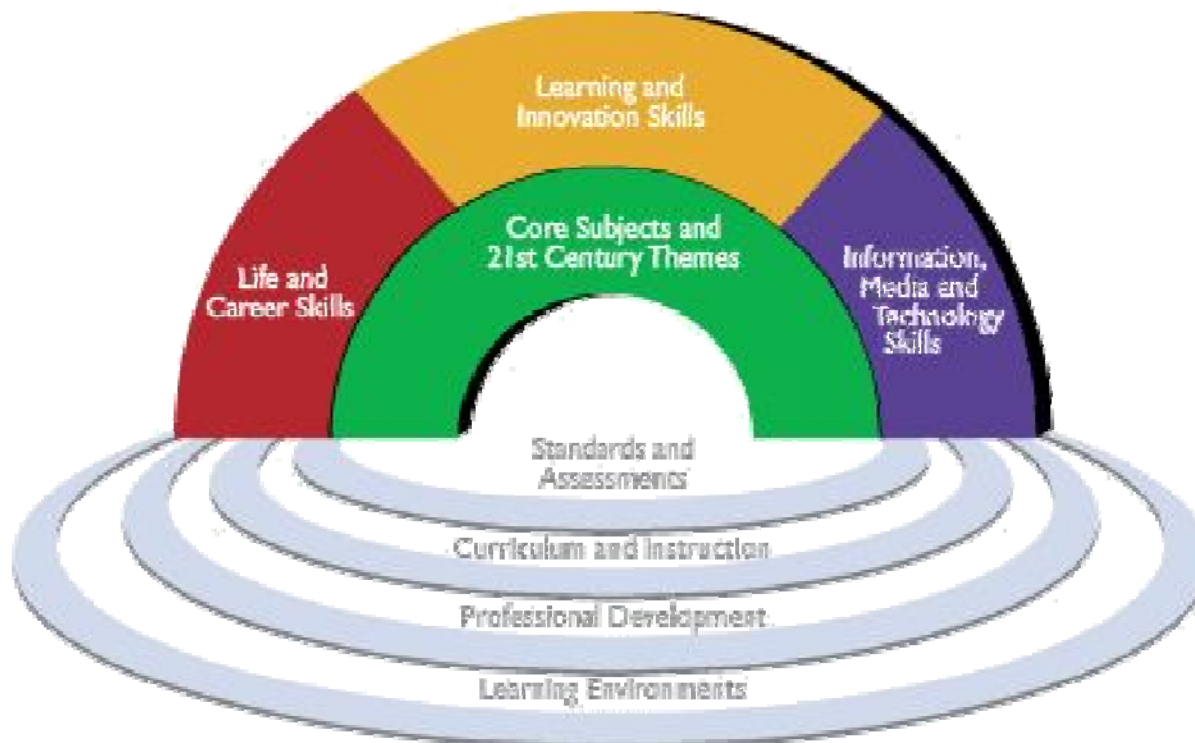






## TECHNOLOGY & MEDIA

# Transformative Technology in Instruction





## TECHNOLOGY & MEDIA

# Transformative Technology in Instruction

<http://www.bjpconsulting.com/spectrum.html>

## *Grappling's* TECHNOLOGY AND LEARNING SPECTRUM

**Technology Literacy Uses**

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**Adapting Uses**

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**Transforming Uses**

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## TECHNOLOGY & MEDIA

# Transformative Technology in Instruction







## TECHNOLOGY & MEDIA

# *Best Practices Include...*

- **Blended Learning**
- **Flipped Learning**
- **Distance/Collaborative**
- **Expanded Audience**
- **STEM**
- **Project Based Learning**
- **Electronic Portfolios**
- **Frequent Formative Assessment**
- **Opportunities for Differentiation**



## TECHNOLOGY & MEDIA

### *Considerations for..*

- **Low Socio-Economic / Lack of Access**
- **English Language Learners**
- **Homeless / Migrant Students**
- **Special Education and IEPs**
- **Adaptive Technologies and Accessibility**
- **Local infrastructure**
- **Changing standards and instructional materials**



## TECHNOLOGY & MEDIA

### ***Conclusion...***

- **Transforming teaching and learning into differentiated, engaging and relevant learning experiences requires shifts**
- **Educators are creating extraordinary learning environments and experiences**
- **Flexible classrooms prepare students for a world economy that demands skills that are difficult to cultivate in traditional classroom models**

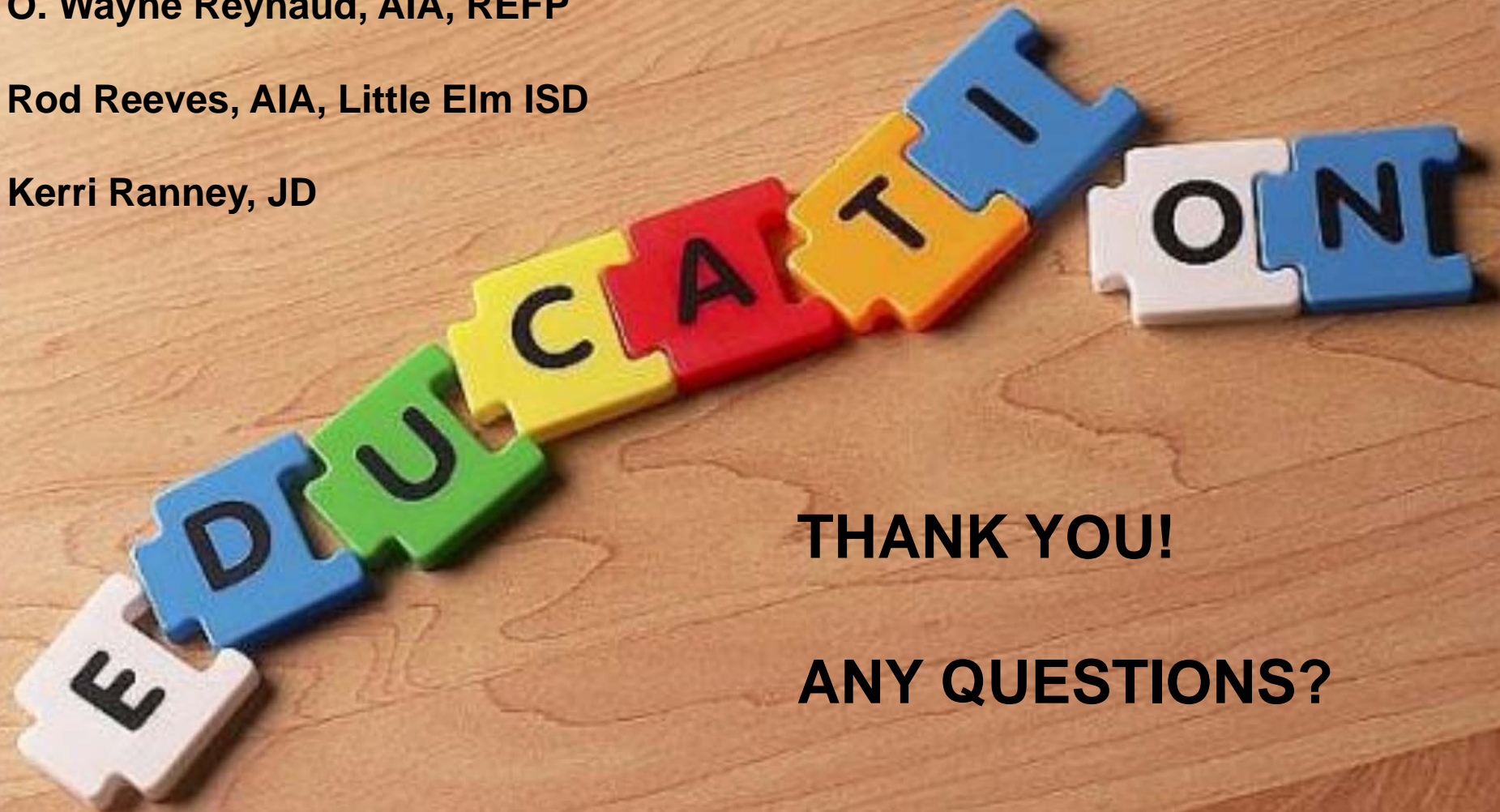


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**THANK YOU!**

**ANY QUESTIONS?**