

# Teaching Live with Mixed Reality Simulation

Courtney Angelosante & Karen Robbie



# A Focus on the Science and Art of Teaching

We seek knowledge in the presence of problems, both practical and theoretical. ~ Karl Popper

What are the challenges in teacher preparation programs?

# A Challenge: Research to Practice Gap

“Teaching is a science in the sense that there are strategies that research over time has shown to have a high probability of enhancing student achievement. These “high probability” strategies are the tools in an effective teacher’s tool box” (Marzano & Brown, 2009).



# Teachlive has the potential to improve teacher preparation and to provide more application experiences along with didactic instruction.

- ***Why not just more time in schools?*** Barriers include:
  - Staffing for supervision
  - Planning logistics
  - Capacity in schools to host pre-service teachers
  - Novice teachers with real students
  - Barriers to immediate feedback and limited opportunities for multiple opportunities to practice





## Mixed Reality Simulation



- Mixed reality refers to computer-generated avatars with a human interactor, which allows for live-time responding from the avatars.
- Teachlive avatars have training in both teaching pedagogy and improv.

Why did we use it?

- Guided Practice with Feedback
- Informal Assessment of student performance, formative assessment to guide our teaching. <https://www.youtube.com/watch?v=HeCPU8M35kM>

# Meet the Avatars!



# TeachLivE as a Promising Teaching Technology

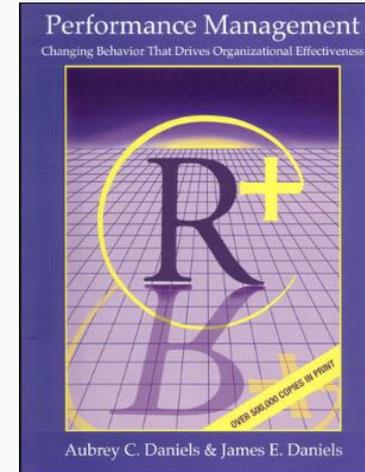
- Easier to link practice to coursework
- Ability to isolate specific skills
- Teach, model, practice, feedback, reinforce (EB teaching model)
- Formative assessment for faculty

Performance Feedback



Learning/  
Behavior Change

- Immediate
- Non-evaluative
- Behavior specific
- Within individual's control
- Standards-based
- Graphical Analysis of Performance





# *The Class*



EHD 301 Classroom-based Prevention and Intervention:  
Supporting Positive Behavior and Academic Achievement



# Big Ideas

Comprehensive Planning

Multi-tiered Systems of Support

Prevention & Intervention

Evidence-based

Functional Thinking



# Evidence-based Classroom Management Practices

- Behavior specific vs. general feedback and praise
- Explicit teaching of expected behavior
- Positive reinforcement for expected behavior
- Continuum of responses to challenging behavior
- Active Supervision
- Pre-corrections



EHD301	Before Class Sessions	During Class	Assignments
<b>Be Respectful</b>	Come prepared to engage in discussions and activities.	Use appropriate and professional language.  Honor diverse opinion perspectives.	Obtain instructor permission <i>prior</i> to due dates if more time is needed.
<b>Be Responsible</b>	Read and/or view expected context <i>before</i> class sessions.  Contact instructor if you are unable to attend class.	Attend class sessions actively participate in discussions and activities.  Ensure technology is off to eliminate distractions for yourself and others.	e.
<b>Be Informed</b>	Follow syllabus, guided notes and class presentations regarding content to be read or viewed.	Check your email for cancellations to weather, instructor emergency, etc.  Be alert to cancellations to weather, instructor emergency, etc.	e dates on calendar, guided notes and syllabus.  Ask questions about assignments in class, through email or during office hours.



# What Did the Student's Teach?

EXPECTATIONS	Classroom Procedures/Routines				
	Class-Wide	Arrival	Cooperative Learning Groups	Independent Seat Work	Whole Group
	Identify Attention Signal.....Teach, Practice, Reinforce				
 <p><b>Be Respectful</b></p>	<ul style="list-style-type: none"> <li>Listen to others</li> <li>Use inside voice</li> <li>Use kind words</li> <li>Ask permission</li> </ul>	<ul style="list-style-type: none"> <li>Enter/exit classroom prepared</li> <li>Use inside voice</li> </ul>	<ul style="list-style-type: none"> <li>Listen to others</li> <li>Accept differences</li> <li>Use kind words</li> <li>Encourage others</li> </ul>	<ul style="list-style-type: none"> <li>Use quiet voice</li> <li>Follow directions</li> <li>Use the FOCUS strategy</li> </ul>	<ul style="list-style-type: none"> <li>Eyes/ears on speaker</li> <li>Raise hand to speak</li> <li>Contribute to learning</li> </ul>
 <p><b>Be Responsible</b></p>	<ul style="list-style-type: none"> <li>Be prepared</li> <li>Follow directions</li> <li>Be a problem solver</li> <li>Make choices that support your goals</li> </ul>	<ul style="list-style-type: none"> <li>Place materials in correct area</li> <li>Begin warm-up promptly</li> </ul>	<ul style="list-style-type: none"> <li>Use time wisely</li> <li>Contribute</li> <li>Complete your part</li> </ul>	<ul style="list-style-type: none"> <li>Use the FOCUS strategy</li> <li>Be a TASK master</li> <li>Use your neighbor</li> </ul>	<ul style="list-style-type: none"> <li>Follow directions</li> <li>Take notes</li> <li>Use the FOCUS strategy</li> <li>Meet your goals</li> </ul>
 <p><b>Be Safe</b></p>	<ul style="list-style-type: none"> <li>Keep hands, feet, and objects to self</li> <li>Organize yourself</li> <li>Walk</li> </ul>	<ul style="list-style-type: none"> <li>Walk</li> <li>Use your personal power to support self/others</li> </ul>	<ul style="list-style-type: none"> <li>Use materials carefully</li> <li>Use your personal power to support self/others</li> </ul>	<ul style="list-style-type: none"> <li>Notice your neighbor</li> <li>Keep hands, feet, and objects to self</li> </ul>	<ul style="list-style-type: none"> <li>Stay at seat</li> <li>Keep hands, feet, and objects to self</li> <li>Notice your neighbor</li> </ul>

# Social Skill Lesson Plan Embedding EBP's

Social Skill (Expectation) Lesson Plan	
<p><b>Lesson Focus:</b>            Demonstrating _____ (expectation) in the _____ (setting).</p>	
<p><b>Teaching Objective:</b>            Following instruction, students will demonstrate _____ (expectation) in the _____ (setting) by _____ (describe behaviors) across ____ out of ____ sampled opportunities (criteria).</p>	
Teaching Examples	
<p>Positive Examples</p> <ol style="list-style-type: none"> <li>1.</li> <li>2.</li> <li>3.</li> </ol>	<p>Negative Examples</p> <ol style="list-style-type: none"> <li>1.</li> <li>2.</li> <li>3.</li> </ol>
<p><b>Lesson Materials:</b></p>	

Lesson Activities	Proactive Classroom Management Strategies (Precorrects, OTRs)
Explicit instruction/Model ( <i>I Do</i> ):	
Guided practice/Lead ( <i>We Do</i> ):	
Independent Practice/Test ( <i>You Do</i> ):	

# Scenario Planner



- Learners
- Goals & Objectives
- Embedded Events
- Intensity of Simulation
- Materials

## SCENARIO PLANNER

MURSION

Computer simulation provides a powerful opportunity for experiential learning; however, its power must be harnessed and targeted to be most effective. While fidelity to reality is important, scenarios should be designed with situational features to provoke targeted knowledge and skills just beyond the learner's capabilities. Simulation used for learning, like all instruction, should be designed so goals of learning are aligned with objectives, activities, and assessments.

SESSION DESIGNER	
Courtney Pacholski & Jim Artesani	
Name	Developing Behavioral Expectations Matrix
Organization	University of Maine, College of Education and Human Development
Phone	Office: 207-581-2472 Cell: 207-737-9756 (Courtney) 207-735-5509 (Jim)
Email	<a href="mailto:Courtney.Pacholski@maine.edu">Courtney.Pacholski@maine.edu</a> and <a href="mailto:Arthur.artesani@maine.edu">Arthur.artesani@maine.edu</a> Graduate assistant for Teach Live: Kayla Collins <a href="mailto:Kayla.b.collins@maine.edu">Kayla.b.collins@maine.edu</a>

### OVERALL DESCRIPTION

Describe your general plan for the session. Is it embedded in part of a larger course or a stand-alone activity? Will your learners do the simulation on their own or with a group? What type of coaching will you provide? Please give us as much information as you would like about your philosophical approach, the simulation learning activities, and the format of your session.

This session is designed for undergraduate students that are majoring in education, as part of a course titled: Classroom-Based Prevention and Intervention: Supporting Positive Behavior and Academic Achievement. Students have had limited experiences in classrooms. This course supports their development of classroom management skills; therefore, our focus for this session will be on students' use of behavior management skills, rather than on the content of the lesson. As part of the course, students create a behavioral expectations matrix (see example attached, as well as a blank template). For consistency of the lessons, and because matrices transcend all grade levels, we would like the participants to utilize classroom management skills (specific/general feedback, opportunities to respond, and active supervision) while completing a classroom matrix with the avatars.

### LEARNERS

Tell us briefly about your learners. Are they practicing teachers, undergraduate candidates, graduate students, or other human service professionals? How much experience do they have? What is their program of study or discipline area?

The participants involved in this lesson are sophomore, junior, and senior undergraduate students in education with very limited experiences with classroom teaching. Nearly all of the students have completed multiple observations, however, they have not had experience teaching. The session objectives have been covered in class through

### SESSION LEARNING GOALS

# Beginning Sessions: Teaching is Tough

[https://www.youtube.com/watch?v=FluvPu\\_1wak](https://www.youtube.com/watch?v=FluvPu_1wak)

Students commented on how this was harder than they thought.

# Pause Simulation!

<https://www.youtube.com/watch?v=VVwWnMfybbo>



# How do we get Maria engaged?

<https://www.youtube.com/watch?v=v8iM506O0cE>



MARIA

# How do I get CJ off of her cell phone?

<https://www.youtube.com/watch?v=Xi9mF8h3O4o>



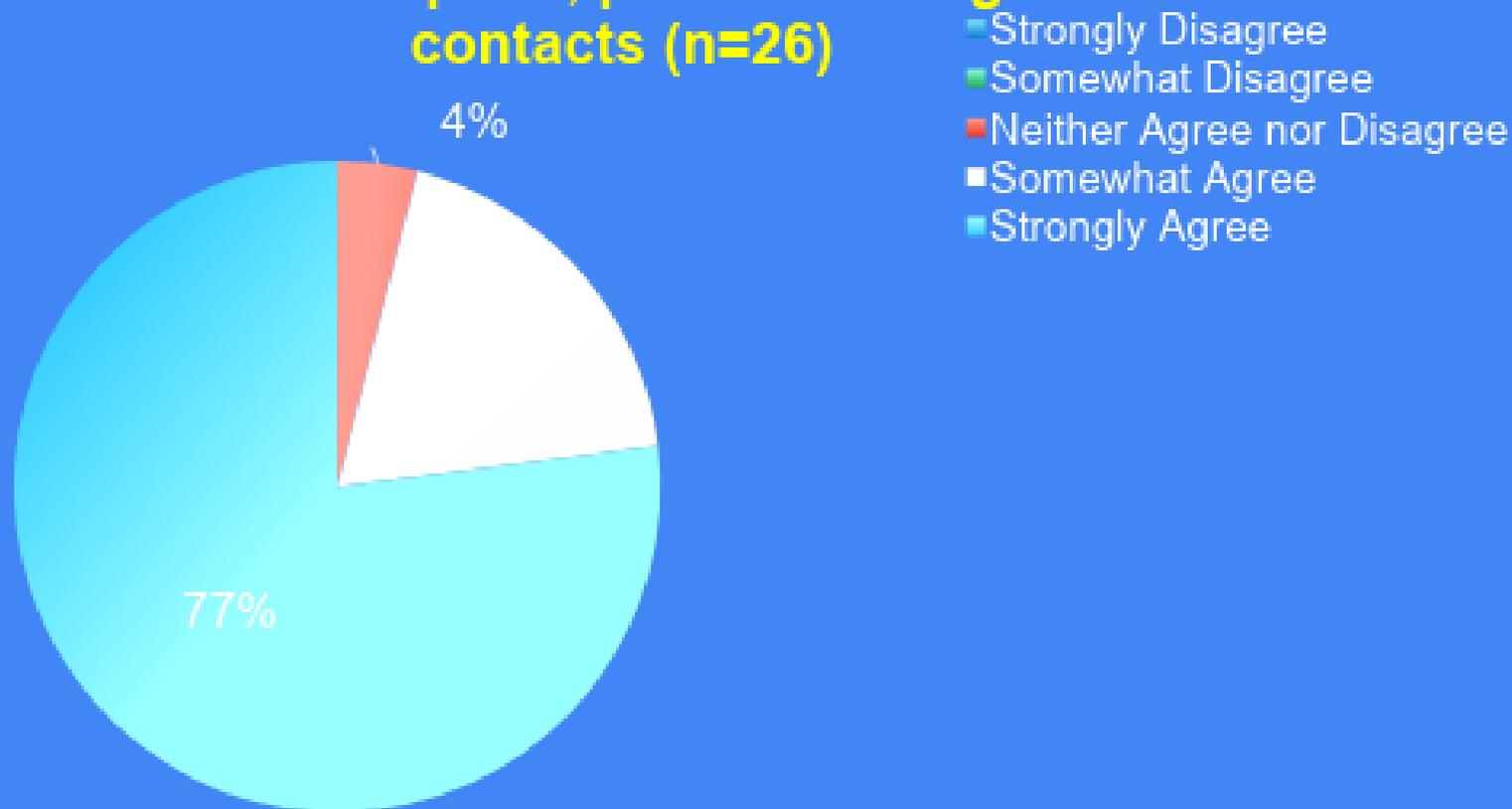
# Peer and Instructor Feedback

<https://www.youtube.com/watch?v=MKf7z9CSbNE>

TeachLive Observation				
<b>Interactions with Students</b>				
<i>Instructions: Make a tally mark in the corresponding box for each type of statement that occurs during the observation session. Add the total number of pre-correct, praise and specific praise statements, then add the total number of behavioral error corrections and non-specific error corrections. Divide the number of positive interactions by the number of negative interactions to determine the ratio.</i>				
Pre-correct statements:	General Praise:	Specific Praise:	Behavioral Error Corrections:	Non-Specific Corrections:
<b>Total:</b>	<b>Total:</b>	<b>Total:</b>	<b>Total:</b>	<b>Total:</b>
<b>Total Positive Interactions:</b>			<b>Total Corrective Interactions:</b>	
Ratio of Positive to Corrective Interactions: _____ to 1 <i>(To calculate divide number of positives by number of negatives)</i>				
<b>Opportunities for Students to Respond (OTR)</b>				
<i>Instructions: Make a tally mark in the corresponding box for each type of OTR that occurs during the observation session.</i>				
Group OTR:		Individual OTR:		<b>Total OTRs:</b> OTR Rate <i>(OTRs per minute)</i>
				<i>(To calculate divide combined total of OTRs by total number of minutes observed.)</i>
<b>Total:</b>		<b>Total:</b>		

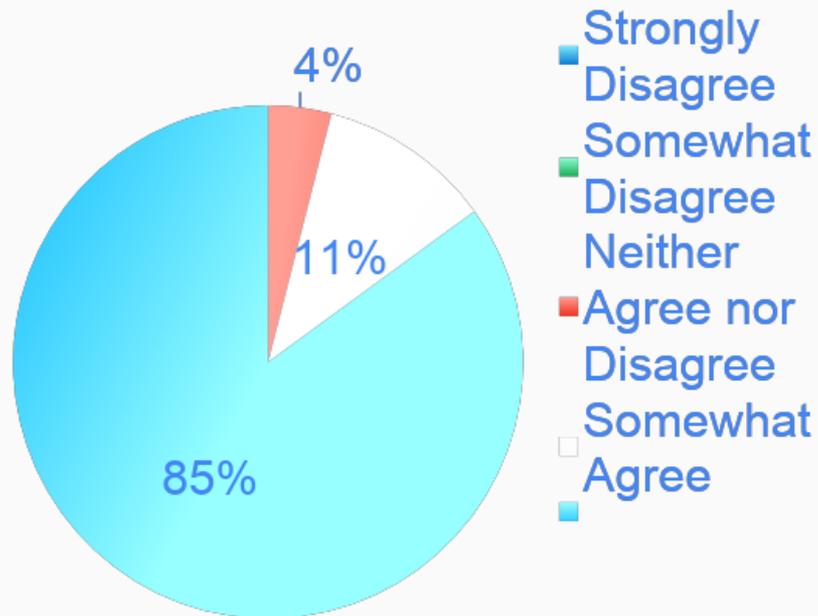
**Provide behavior-specific feedback to your peer. (HINT: Use the data above!)**

**This experience with TeachLIVE allowed me to improve my skills in providing "behavior specific feedback, opportunities to respond, positive to negative student contacts (n=26)**

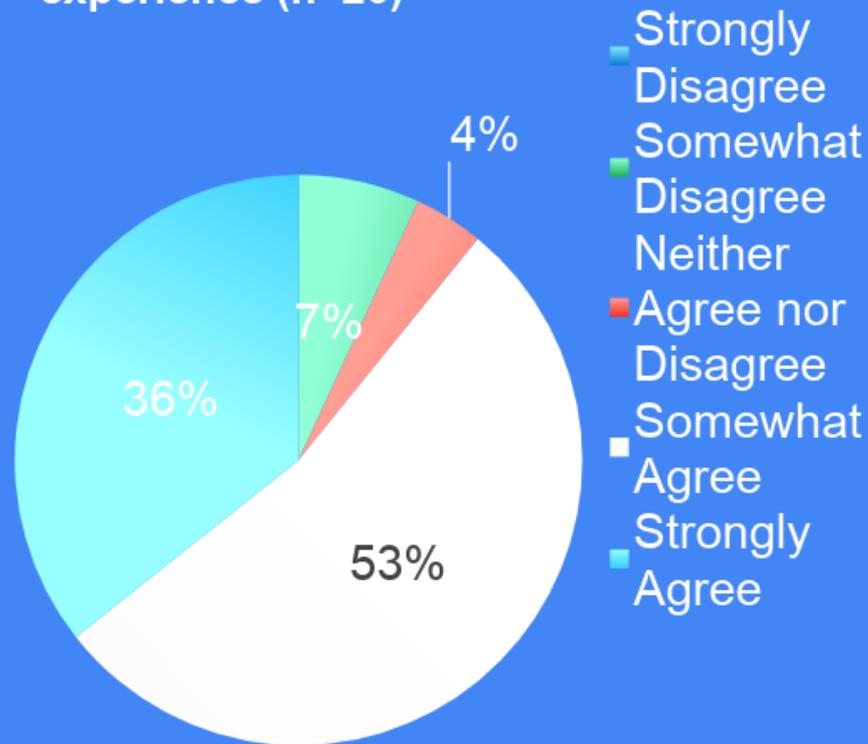


I would recommend additional practice with behavioral management strategies using TeachLIVE (n=26)

## What Did We Learn



My level of comfort while participating in the TeachLIVE simulator allowed me to benefit from this learning experience (n=26)



## What our students had to say:

"Having this experience definitely helped me to consider what I might do under real circumstances."

"It made me realize how different it is to actually be in a situation and apply my skills rather than writing about them."

"I really enjoyed having feedback from my instructors and peers. It gave me perspectives of what I did good on and how I could improve."

# Bridging theory into practice

**Mixed Reality Simulation Effectively Creates:**

Risk

**Stress**

Exposure

Unpredictability



*Connection with course content*

**Peer supports**

**Reflection**

**Responses to feedback**

# What Did We Learn about Ourselves?



## Examining Our Perceptions!

- The live performance of some students exceeded our expectations.
- Our perceptions of our student's potential is sometimes too low!
- Classroom participation, in some cases, is not an accurate predictor of teaching performance and vice versa.
- For some students, there was an observable difference between participation in the classroom and their enthusiasm during TeachLive.

# What Else Did We Learn?

Opportunities to Respond (OTR) as a way to facilitate engagement.

Questioning strategies

Specific versus general feedback statements

Opportunity to engage students in research

Peer observation for faculty



# What Challenges Do We See Ahead?

Organizational logistics

Time intensive demands on instructor

Providing “enough” simulation experience

# What Questions Arose?

Recommended Dosage: How much is enough to move from interesting and fun to desired outcomes?

How do various components (e.g., peer feedback, problem-solving, specific pedagogical skills, self-awareness) effect performance?

What is the impact of using data-based performance feedback on specific student behaviors?

How can goal setting be used to facilitate a growth mindset measurable growth?

What is the observer effect?

# What Will We Do Differently?

Be more explicit regarding the skills students are working on.

Teach students how to collect observation data on teaching skills.

Have students help design the lesson.

Provide two experiences (over 2 days) instead of one and video the simulations with a student analysis and reflection activity.

# Other Applications

Avatars provide feedback to teacher candidates

Educational Leadership

Counselor Education

Behavioral Observation – Data Collection

ESL

In-service Professional Development



# Future Directions



*Mixed reality* is a term first employed by Milgram and Kishino (1994) to describe the space in between entirely virtual environments and entirely real-world environments.

*Embodied Learning* an immersive technology experience that situates the student inside the to-be- learned system (Colella, 2000; Lingren & Johnson-Glenberg).

*The Situated Cognition Theory* is centered around the idea that knowing is “inseparable” from actually doing and highlights the importance of learning within context (Brown, Collins, and Duguid in 1989).

Questions

Questions