From "Mixed-Reality Teaching Experiences Improve Preservice Special Education Students' Perceptions of their Ability to Manage a Classroom," by Melissa E. Hudson, Karen S. Voytecki, & Guili Zhang (Journal of Virtual Worlds Research, 2018)

Focus on replicating small-group classroom situations, in this case managing classroom behavior.

Why a simulation?

- "amount of time spent in practicum and internship experiences varies between teacher preparation programs and, as a result, some preservice teachers might not have enough time to develop adequate behavior management skills" (p. 2)
- "The frequency of high-intensity behaviors (e.g., cursing, bullying) is low in real classrooms, which limits the number of opportunities preservice teachers may have to improve their skills in managing these behaviors"
- "situations requiring classroom management do not happen on demand and cannot be interrupted to have a teachable moment with the preservice teacher"

What does a simulation look like?

- "student avatars have unique personalities based on adolescent development research...includ(ing) four general categories: (a) aggressive-independent, (b) aggressive-dependent, (c) passive-independent, and (d) passive-dependent which can be supplemented with other traits as well (i.e., phobic, hysteric, obsessive/compulsive, and impulsive) at different levels of intensity"
- "Scenarios (i.e., simulations) are developed around a desired outcome behavior"
- "avatars are controlled by artificial intelligence and a human interactor. The interactor wears an exoskeleton suit that enables manipulation of the avatars. He sees the individual's reactions as the scenario unfolds and makes the avatar respond in a way that both matches the scenario and the teacher's behaviors in real-time. The interactor knows each avatar's characteristics and personalities, as well as the purpose and goals of the lesson, and can respond consistently and uniquely to each individual"

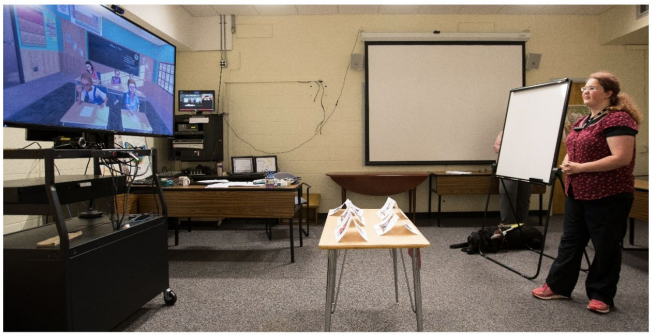

Figure 1. Participants interacted with the avatar students in the Mursion lab. The avatar students were visible to the participants on a large computer monitor and were controlled by an off-site interactor. The interactor could also see the participants and the materials they used, such as the dry erase board in this photograph. This particular participant was legally blind and could not see the avatar students clearly on the screen. As an accommodation, enlarged cards with the avatars' pictures were displayed on the table in the center to help the participant understand what was happening on the screen.

This specific case:

> **Classroom scenarios**. Three unique scenarios were developed for the study and carried out in the Mursion lab. The purpose of the first scenario was to give participants an opportunity to get to know the avatar students by finding out their names and favorite subjects in school. The level of behavior demonstrated by the student avatars was set at level one (minimal), meaning that the avatars might talk out of turn, but were generally compliant to teacher direction. The first scenario was shorter than the other two (3 min instead of 5 min) because the purpose was only to familiarize the participants with the mixed-reality environment, not teach. Additionally, it was early in the semester, and the participants had not yet learned any classroom management strategies in their university course. In the second scenario, participants were asked to develop classroom rules with the avatars and to teach a group alert strategy (e.g., a type of strategy designed to increase on-task behavior). The level of behavior demonstrated by the student avatars during the second scenario was set at level two (minimum-medium), meaning that the avatars might use a cell phone, make rude comments, initially resist teacher redirection, or sleep in class. In the third scenario, participants introduced a new unit of study of their choice. The level of behavior demonstrated by the student avatars was set at level three (medium), meaning that the avatars might not respond immediately to redirection and escalate the frequency and intensity of lower level behaviors. The second and third scenarios were 5 min in duration.

What is the follow-up?

- For the purposes of the study, preservice teachers completed surveys and did one-minute recorded reflections immediately following the simulation ("What went well? What would you change?")
- No other information provided about what kind of feedback preservice teachers received

What does this look like while it's happening?

Here is a video of a Mursion class, with the student avatars just doing introductions. It gives you a sense of what the avatars look and sound like. (The teacher who interacts with them is IRL, not an avatar on the screen as you're seeing in this video.)

This video gives you an example of what a classroom management situation might look like in Mursion. You can see the preservice teacher talking from outside the screen and the avatar reacting. (Note: This video is used as part of Pace University's online-only TEP, so you'll see at a certain point that they ask a MC question of the person watching the video and then replay the scene following the "correct" way of doing it. In most programs, this is not how it's used; the primary use is what we are watching happen, with an IRL candidate interact in real time with the avatars.)