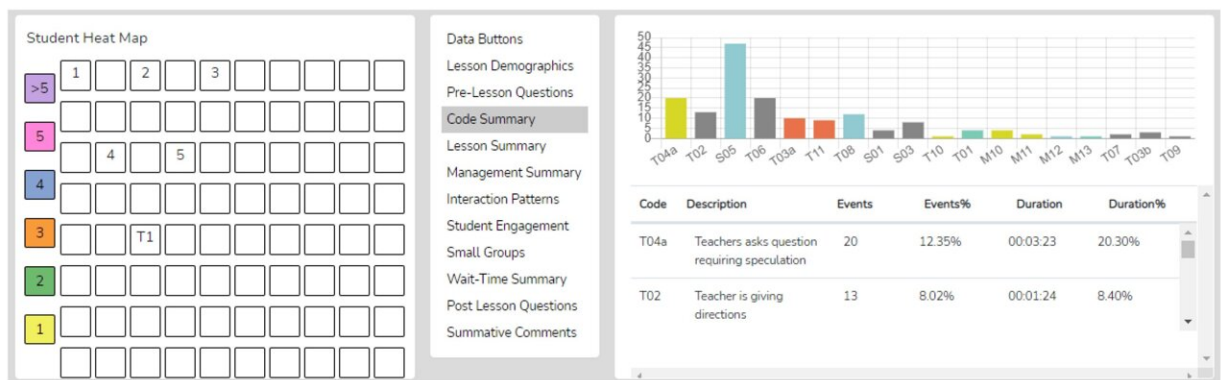


# Study shows simulator, combined with app, helps teachers correct mistakes before entering classroom

September 21 2023, by Mike Krings



Code summary example. Note: The raw counts, time accumulations, and percentages of various discrete teacher and student actions coded during the observation create an evidence-based picture of teacher tendencies that becomes the basis for a more meaningful analysis shown below. However, even the raw data can be an important indicator. For example, suppose the teacher asked 85 questions during an observation, and 81 were low-level yes/no questions. In that case, it creates a baseline indicator to measure potential or desired change in future classroom observations. Perhaps the next lesson’s change in teaching target was to ask a greater number of higher-level questions, and data from the observation shows the teacher asked 35 (out of the 75) questions requiring higher-level thinking. This increase is a distinct change in questioning that informs the teacher on how the change impacted student thinking, an important indicator to monitor regarding growth in teaching skills. As such, even raw counts are valuable indicators and provide a data-enabled window into a teacher’s tendencies and an indicator of whether that teacher has changed their approach

in a manner supported by research. Credit: *Education Sciences* (2023). DOI: 10.3390/educsci13070744

When pilots, surgeons or others with high-stakes professions are learning their craft, they have simulators with which to practice. Now, a new study shows that a simulator, when combined with software to provide data on performance, can help teachers learn what mistakes to avoid before working with working in a real classroom.

A new study co-written by a researcher from the University of Kansas examined TeachLivE, or TLE, a simulator that allows pre-service [teachers](#) to deliver lessons in front of a virtual classroom of avatars. The avatars represent a diverse background of students with various personalities and academic skill levels.

The simulator was combined with SeeMeTeach, or SMT, a recently developed web-based teacher observation app that provides real-time data on [teacher performance](#). The results showed the simulation experience combined with personalized feedback data can support teachers' practice of skills of their profession free of judgment while improving their performance.

The study, co-written with researchers Craig Berg and Raymond Scolavino from the University of Wisconsin-Milwaukee, was published in the journal [Education Sciences](#). Co-author Lisa Dieker, Williamson Family Distinguished Professor in Special Education at KU, said the use of a teaching simulator can help future educators learn from their mistakes before leading a classroom of their own.

"We humans make mistakes, especially the first time we do things, and unfortunately for teachers, those mistakes are made on children," Dieker

said. "We want to ask, 'How can we use this combined technology for developing targeted skills and helping teachers make the changes necessary?' If you're going to have a [crash landing](#), let's have it in front of an avatar."

The mixed-reality technology features avatars that operate via AI combined with a human-in-the-loop as a user practices delivering lessons, calling on students, detecting inappropriate behavior and more. That is combined with a human user who can provide responses from students, based on the nuance of the situation and the users' performance. SMT gathers [real-time data](#) on the teacher such as how many times they call on a certain student, how long they provide wait time for an answer and what section of the classroom draws the most attention.

Study results showed that users of the combined simulator and teaching data app used the data and feedback they gained to avoid repeating mistakes and even showed "teaching fingerprints," or bodies of data on what they did right, and their strengths that indicated a unique teaching style.

Teacher training has traditionally relied on observation and written and verbal feedback. That method has stood the test of time, but the authors said it can be supplemented with technology that provides specific data about their performance.

"When teachers get specific information in the simulator, it not only helps them change their behaviors but to understand why they should," Dieker said. "This work allows a lot of empowerment of the individual without being judgmental."

The study found that teachers offering even a 15-minute lesson to avatars in TLE showed enough variation in how they interacted with

student avatars to provide practice opportunities in a low-risk setting. And the data provided by the SMT app showed to be effective in helping them avoid repeating mistakes and taking lessons learned into practice. That can help all teacher educators achieve their goal of preparing great teachers who can provide students their best possible experiences from the beginnings of their careers, researchers said.

Dieker plans to continue researching ways teaching simulators and technology can help educators hone their craft before entering classrooms. That can prove especially important to students with novice teachers.

"A teacher can make or break your future," Dieker said.

"All other simulators take a logical, linear pathway. This [simulator](#) can do things you can't through methods like role play or classroom observation. I want to help make a first-year teacher look like a third-year. Our most vulnerable students often have [new teachers](#). I am confident emerging technology in simulation, [artificial intelligence](#), biometrics and neurophysiological data collection can help us understand the differences between expert and novice teachers to better prepare and support all teachers."

**More information:** Craig Berg et al, Using a Virtual Avatar Teaching Simulation and an Evidence-Based Teacher Observation Tool: A Synergistic Combination for Teacher Preparation, *Education Sciences* (2023). [DOI: 10.3390/educsci13070744](https://doi.org/10.3390/educsci13070744)

Provided by University of Kansas

Citation: Study shows simulator, combined with app, helps teachers correct mistakes before

entering classroom (2023, September 21) retrieved 6 May 2024 from  
<https://phys.org/news/2023-09-simulator-combined-app-teachers-classroom.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.