Repeating Teaching Experiences using Virtual Classrooms for Preservice Teachers

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REPEATING TEACHING STRATEGIES

Teacher education programs provide pre-service teachers (PTs) clinical experiences over several courses spread across the teacher preparation program. These clinical experiences range in diversity of teaching involvement, content areas, and settings. Some clinical experiences take place in-person within the K-12 classrooms while others are conducted through teaching simulations with peers during methods courses.

Due to the nature of in-person K-12 classrooms, opportunities for PTs to engage in a cycle of teaching, reviewing/reflecting, and reteaching is limited. Some research indicates, however, that opportunities for PTs to review their teaching and then repeat the experiences (either focusing on the same lesson or the same HLPs) positively impacts the PTs effectiveness in the field (Ward, Chen et al, 2018).

Teaching simulations, unlike live K-12 classroom clinical experience, allows for PTs to practice their teaching, with the potential for repeating that experience once or multiple times to advanced effectiveness. In the repeated teaching simulations, PTs have an opportunity to practice teaching content and skills, reflect on their performance and then practice again, making necessary modification to content and/or delivery (Arsal, 2015, Yoon, et. al, 2017). Further, the opportunity for deliberate practice of part or whole lesson aids the development of a growth mindset (McClendon, Neugebauer et al, 2017).

VIRTUAL CLASSROOM SIMULATIONS

Practice is a critical component of the teacher preparation experience as cited routinely in research (Boerst et al., 2011; Walshaw & Anthony, 2008; Council of Chief State School Officers, 2013; Teaching Works, 2019; Association of Mathematics Teacher Educators, 2017; National Science Teaching Association, 2013) and virtual simulation classrooms give teacher preparation programs and their PTs potentially unlimited opportunities for such practice.

In the virtual classroom, PTs are met by a classroom of avatar students who engage with the PTs as would a student in a K-12 classroom.

PROBLEM AND PURPOSE

High-leverage practices (HLPs) are pedagogical strategies used across content areas to effectivity impact student learning. HLPs are a critical component for pre-service teachers (PTs) to practice during clinical experiences in their teacher education programs. Historically, HLPs have been practiced directly in K-12 classrooms as isolated one-time teaching experiences. Often, these experiences are spread across multiple methods courses with limited opportunity to review the PTs performance and even greater limitations for the PT to repeat their practice and make improvements.

Repeated teaching experiences in two methods courses using virtual classroom simulations. The virtual simulations allow PTs to practice selected HLPs and reflect on their performance before attempting the same simulation again.

RESEARCH QUESTIONS

1)What HLP's were improved with repeating a teaching cycle for preservice teachers? (2) Do preservice teachers' reflections on teaching change with repeat teaching? (3) Is there a relationship between preservice teachers' repeating teaching and self-efficacy? (4) Is there an association between demographics (age, gender, race, year in program) of preservice teachers and improved performance

METHODOLOGY

A mixed methods approach will be used to examine the effectiveness of the virtual teaching simulations and the affordance they give for reflection and re-teaching. Virtual simulation time slots will be attained through a partnership with the University of Mississippi.

The teaching simulations will replace a portion of the required clinical experiences in two of the teaching methods courses (MATH 221, Mathematics for Elementary Teachers I, and EDTE 408 Principles of Teaching and Learning). The Teaching, Learning, and Curriculum (TLC) department is in the process of mapping the HLPs to specific courses.

Once they have completed the simulation, the system will send the recoding to both the PT and the faculty researchers for review. Faculty researchers will use the TLC department's Instructional Practices Observation Rubric to assess the lessons. They will also guide the PTs in a reflection and revision process. The PTs will repeat the teaching simulation experience focusing on the same identified HLPs.

The faculty researchers will use the Instructional Practices Observation Rubric to assess teaching practices demonstrated by the PT. Data from the two sets of rubrics will be collected and analyzed to determine if the virtual simulations affordances allow teachers to reteach, increases the effectiveness in instructional practices. Qualitative evidence in the form of field notes and narratives from teaching the courses will be also included.

SIGNIFICANCE TO FIELD

The current pandemic has shed light on the fact that advancement in education and the need for innovated methods of teaching and learning are needed. Teachers and teacher educators are rapidly searching for new ways to meet the needs of students. While these innovations serve the immediate purpose of providing temporary solutions during a time of crisis, they also open doors to new possibilities post-crisis.

RESULTS

Quantitative analysis found that of the ten standards assessed using the observation rubric, three standards of teaching were improved. The Learner Development and Learning ($p < 0.046$), Subject Matter($p < 0.046$), and Assessment ($p < 0.046$) were significant.

Student's self-reflections noted strengths included class discussions, creating positive learning environments, becoming more comfortable teaching, and accessing prior knowledge at start of lesson. Areas of needed growth were identified as classroom management, content knowledge, differentiation and pacing of lesson/time management.

CONCLUSIONS

Virtual classrooms allow for micro-teaching experiences that are low risk of detrimental student impact and allow for reteaching opportunities. They also produce a more realistic environment, with PTs approaching the opportunity in a more professional and intentional manner.

PTs came more prepared and were more engaged in the teaching in the virtual classroom as opposed to micro-teaching to their peers. This may be due to the trainers behind the avatars and the video-taping.

PTs having to watch the recording and self-reflect created accountability and allowed them to self-evaluate strengths and areas of growth in an evidenced-based manner.

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