

PRESERVICE TEACHER LEARNING OF PRACTICE THROUGH SIMULATED TEACHING EXPERIENCES BEFORE, DURING, & AFTER COVID

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This working group is a continuation of a 2019 PME-NA working group focused on the challenges and opportunities of using simulations of teaching practice as an educative tool for preservice teachers focusing on simulation use in the context of the COVID-19 pandemic. Initially, we will share the takeaways from the 2019 working group. Next, we will discuss our experiences implementing simulated teaching within mathematics methods courses that experienced challenges due to COVID-19 conditions. Finally, we aim to identify the pieces of this work that are worth preserving after the pandemic.

Keywords: Simulation, Preservice Teacher Education, Online and Distance Education, Technology, Classroom Discourse

It is essential for preservice teachers (PTs) to have authentic practice-based experiences during their professional preparation (Ball & Forzani, 2009; Forzani, 2014). Among the three key components of professional education (Grossman, Hammerness, & McDonald, 2009), approximation of practice provides “opportunities to rehearse and enact discrete components of complex practice in settings of reduced complexity” (Grossman et al., 2009, p. 283). Approximations of practice provide opportunities for PTs to learn from their mistakes, experiment with various instructional approaches, and enhance their teaching knowledge and skills (Girod & Girod, 2008). Because PTs are not interacting with actual students, they can develop their professional skills in a safe environment without worrying about the possibility of negatively impacting student learning. Simulations have become a popular means of providing approximations of practice in a variety of professions, including medicine, aviation, and the military. The impact of using simulations to improve teachers’ practices has been investigated in recent years (e.g., Straub et al., 2014; Howell & Mikeska, 2021). Challenges emerging from the COVID-19 pandemic of 2020, however, have brought simulations, and particularly digital simulations, into the mainstream as never before, with widespread endorsement from professional organizations such as the American Association of Colleges for Teacher Education ([AACTE], 2020). It has also, in response to difficulty in accessing field placements, led to the rapid expansion of their use in lieu of work with children, a use that was never intended in the design of most such simulations. We see this as productive struggle; while necessity in the face of unprecedented challenge may have been the primary driver of this rapid expansion in simulation use it has also allowed us to learn from this natural experiment in simulation use and re-imagine what we may want to retain from the approach as we emerge from the pandemic and re-invent our approaches to teacher preparation.

Focus of Work

This working group seeks to explore the following questions:

1. What affordances and/or challenges did you see in using, adapting, and integrating digital simulations before the pandemic?
2. How and why did the affordances and/or challenges change during the pandemic?
3. What affordances and/or challenges do you see in using, adapting, and integrating digital simulations after the pandemic?

Organization and Plan for Active Engagement

The overall goal of this continued working group is to expand the community of researchers, teacher educators, and practitioners from the initial working group to explore how simulations of practice can be optimized to provide opportunities for teacher learning during the pandemic and in a post-pandemic world. Prior to convening in Philadelphia, we will ask participants to complete a brief survey on their experiences using teaching simulations. We will use this information to frame the working group discussions.

The working group will consist of three sessions during the conference followed by virtual meetings through the following year. We organize the sessions and focus roughly along the timeline of before/during/after, focusing first on what is known about simulation design and use, next on foregrounding emergent learnings from participants' uses of simulation during the pandemic, and finishing by looking forward to where we collectively see value in the approach moving forward. In each session, participants will have opportunities to share their experiences and collaboratively design simulation tasks based on lessons learned from the community.

Session 1. A Principled Start: Pre-Pandemic Simulation Design and Best Practice

In this session, we will begin by sharing the takeaways from a 2019 PME-NA working group focused on the challenges and opportunities of using simulations in a pre-COVID-19 pandemic. The 2019 working group explored three key topics: the theories of action by which teacher learning is expected to result from engagement in simulation activities, design principles grounded in those theories of action, and how to leverage simulations to measuring the development of mathematics knowledge for teaching (MKT), teaching practice, or other valued outcomes.

Session 2. Meeting the Challenge: Affordances & Challenges in Simulation Use during COVID-19

We will then transition into our experiences using simulations during the COVID-19 pandemic and within the context of restricted access to field experiences. Specifically, the facilitators and participants will share lessons learned from redesigning methods courses around simulation-based activities, including the participation of a subset of the authors in grant activities that were conceptualized to provide exactly such opportunities (Bondurant, 2020; Lee & Freas, 2020; Schwartz, Lee, Gonzalez, & Belford, 2020).

Session 3. Crisis to Opportunity: Simulations in Post-Pandemic Teacher Preparation

Finally, we aim to discuss the components of simulation experiences that are worth preserving after the pandemic. Participants will reflect on how the simulated experiences compared to their pre-pandemic PT field experiences. They will share how they plan to incorporate simulations in their programs moving forward as well as their justifications for these decisions.

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