

## **simSchool's SIMULATION-BASED LEARNING ENVIRONMENT: A TRAINING TOOL FOR TESOL TEACHER CANDIDATES**

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**As** current TESOL fieldwork and practicum requirements are on hold and teacher programs are desperately searching for other pathways to practicum completion for teacher candidates, simulation-based learning (SBL) with emotionally intelligent student avatars no longer seems a futuristic endeavor. This review focuses on simSchool, an online web-based virtual classroom environment populated with emotionally intelligent simStudents.

Multiple studies and articles have discussed the potential that simulations have in teaching and learning contexts (Dalgarno et al., 2016; Dieker et al., 2014; Lateef, 2010; McGarr, 2020). The effectiveness of a simulation depends on its accuracy and context. Such simulations may be difficult to create, but they can also provide important feedback to the student in real time if they are accurately and realistically constructed (Vega, 2002). The category of mixed-reality simulations (MRS)s includes both virtual and real environments, spanning the reality–virtuality continuum (Milgram & Colquhoun, 1999). Organizations focusing on medicine, nursing education, aviation, corporate work, safety training, and the military have used simulations for years, in fact, enabling trainees to make decisions based on best industry practices in virtual environments representing hospitals, warehouses, airplane cockpits, and wartime engagements.

Practice-based teacher education (PBTE) models illuminate high-level teaching practice, with a specific focus on the situated context of use. A PBTE model engages teacher candidates in task-based approaches that have their roots in the communicative language teaching method. MRSs afford a safe practice teaching environment with standardized assessment platforms that allow teacher educators to observe teacher candidates interacting with avatar students in ways that would otherwise be difficult to replicate in university environments or brick-and-mortar classrooms, facilitating the administration of feedback and allowing the candidates opportunities for do-overs (Dekel & Siniscalchi, 2015).

simSchool is partially funded by the Preparing Tomorrow's Teachers to Use Technology (PT3) program administered by the U.S. Department of Education. It is an online teaching simulator that has been used in teacher training since 2003, modeling different types of students and providing virtual practice sessions in which teacher candidates assign tasks and interact with students (Knezek et al., 2013). According to Darling-Hammond and Sykes (2003), "Research shows that beyond verbal skills, subject matter knowledge, and academic ability, teachers' professional knowledge and experience also make an important difference in student learning" (p. 8). simSchool and other SBL environments offer an alternative way to connect the theoretical framework of teaching, TESOL teacher candidate observations, and practicum teaching with practice-oriented simulations (O'Callaghan & Piro, 2016).

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simSchool can be viewed as an epistemic game that uses guided concept pathways in instructional activities, thereby enabling teacher decisions to be made in reference to specific teaching contexts. Teacher candidates must use high-leverage approaches to make decisions on simulated instructional activities choices within the interactive environment of a virtual classroom. According to Dekel and Siniscalchi (2015), epistemic game theory is based on “players’ beliefs about the play of the game, their beliefs about players’ beliefs about play, etc.; these are called hierarchies of beliefs” (p. 624). simSchool student personalities include three component categories (each with 10 settings): five traits and needs, 17 learning preferences, and a variable for social expectations (Zibit & Gibson, 2005).

After registering a free, limited-time account as an educator, administrators can freely explore modules and resources simSchool offers. The ability to create a class or practicum cohort for teacher candidates is a paid feature, but the amount does not seem unreasonable. The resources and tutorials that are immediately available upon free registration and account creation are Episodes 1–4: Learning How to Use simSchool; Episodes 5–8: simSchool Artificial Intelligence; Episodes 9–11: Understanding Reporting; and Tips and the simSchool Instructor Guide 2020–2021. In addition, a wealth of other online resources, such as Pedagogical Balance in a Simulated Classroom, is accessible in the research sections,

To receive a report from the system, a practicum teacher candidate must interact with simStudents for a minimum of 15 minutes so that teaching strategies can be observed, thereby enabling automated report creation, powered by the system’s artificial emotional intelligence tool. Interacting with simStudents entails assigning an instructional task, making a comment, applying a teaching strategy, and calling on a student with a raised hand. Artificial emotional intelligence guides the behavior of simStudents, who respond in idiosyncratic ways to the learning tasks assigned, interactions with teacher candidates, and the classroom management strategies applied. Teacher candidates can reteach any class, tracking the time they spend, and the class flow is captured for field faculty review. This is an extremely useful feature for practicum purposes in particular because practicum candidates require repetition to practice and perfect their instructional strategies for ENL. The feedback reports produced by simSchool are designed to give teacher candidates robust opportunities for self-reflection. In relation to this point, Black (2015) suggested that “Critical to candidates’ self-efficacy is their understanding of teachers’ progression toward self-efficacy as a normal process, which requires knowledge and practice” (p. 91).

In summary, the SBL tool simSchool is unique because it can be employed as both a bridge and a tool to revisit interrupted field experiences and course work for TESOL teacher candidates in training, allowing them to develop their understanding of and responses to the needs of diverse learners, to simulate a range of classroom settings, or to simulate proficiency levels in ELL students. This permits teacher candidates to try out different and novel ENL strategies, thereby heightening teacher effectiveness and leading to the development of increased language proficiency in ENL students in either face-to-face or online environments.

It should also be kept in mind that MRSs for TESOL teacher candidates provide standardized contexts that allow them to focus more precisely on specific teaching skills, thereby enabling them to refine their skills under supervision by field faculty and practicum coordinators in a safe environment. The utility of virtual environments for improving teacher practice depends on how well growth within a simulated context generalizes to actual classroom teaching (Cohen et al., 2020). Simulated classroom environments are a practice space that provides the possibility of PBTE with robust feedback, coaching, and do-overs in specifically tailored, TESOL-specific teaching scenarios. Because social distancing measures are in force in most countries worldwide as of June 2020, and recent pandemic modeling suggests that it may continue in some form for the next 18 months (Currie et al., 2020), school placements and field and practicum work for teacher candidates will continue to be negatively affected. Simulated practicum environments are an important tool in mitigating the impact of the COVID-19 pandemic, and they are also a viable path forward for online TESOL programs that require fieldwork and specialized teacher practice

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