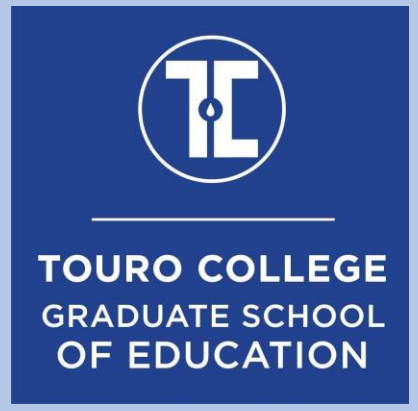
GLoCALL 2021
Simulation-Based Learning Environments: Practice-Based Teacher Education for TESOL Teacher Candidates



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This presentation focuses on reviewing, contrasting, and framing two different virtual training environments for TESOL educators searching for additional opportunities to offer interactive field and practicum experiences: simSchool and Mursion.

Simulation-based learning (SBL) with emotionally intelligent student avatars no longer seems a futuristic endeavor.

Mursion Avatars

Virtual Learning Environments (VLE)

Dieker, Hynes, Hughes, and Smith (2008) report that prospective teachers need more early and sustained experiences with children in the classroom. One way to provide these sustained and early experiences is in a safe, low-stress environment, which can be accomplished through VLEs.

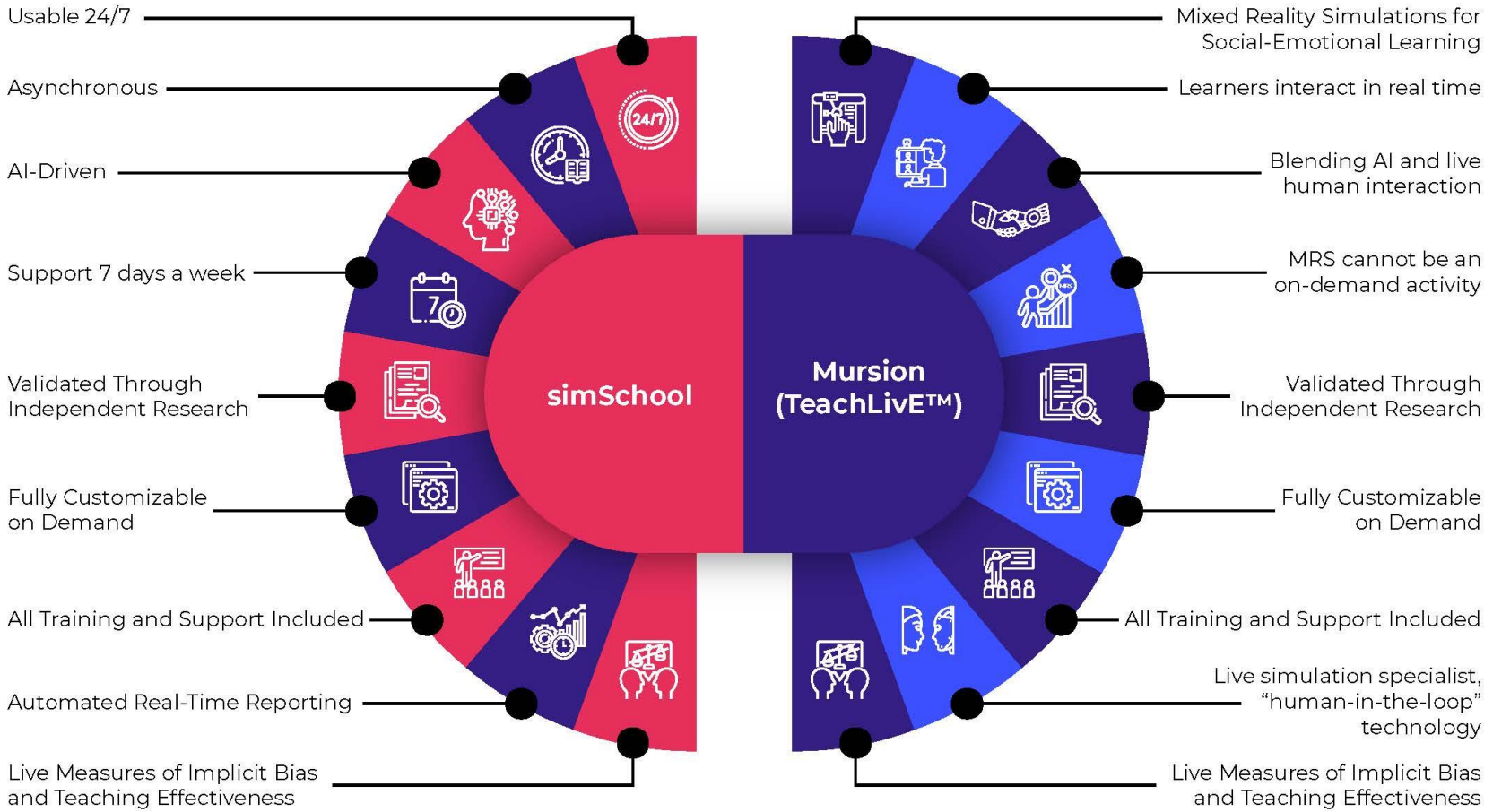
The effectiveness of a simulation depends on its accuracy and context.

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).

Simulation-Based Learning Environments:

Practice-Based Teacher Education for TESOL Teacher Candidates

DESIGNED BY JASMIN (BEY) COWIN, ED.D.



DR. J'S EDUCATION BLOG
https://drcowinj-locationindependentteach.com/

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)

1

Simulation-based learning (SBL)

replicates aspects of the real world in an interactive manner that allows learners to be immersed in real-time within the learning environment.

2

Artificial Emotional Intelligence (AEI)

deals with measuring human emotion, understanding stimuli, and giving back an appropriate response based on the situation and desired training outcomes and responses. Student avatars can be based on the **Ortony, Clore, and Collins Model (OCC Model)**

3

(e.g., love and hate)

3

Epistemic Game Theory (EGT)

is the formal analysis of players' interactive strategic reasoning in games or simulated learning environments.

4

Educational Scenarios

or learning scenarios is an instructional design model for a given subject and a given kind of situation. It defines what learners and other actors such as the teacher candidate should/can/shouldn't do with a given set of resources, tools and emotional challenges.

5

Guided Concept Pathways

different scenarios depending on the teaching intervention branch out relation to academic, cognitive, and socioemotional success, as well as use-related variables and responses of the AEI directed student avatar.

6

Instructional Activities

small, routine segments of instruction that specify how teachers and students will participate and how they will interact with materials and content such as reading, writing, listening and speaking mathematics, and desired behaviors.

7

Adaptive Student Progression

or adaptive learning requires adaptive teaching which is based on delivery of custom learning experiences that address the unique needs of an individual through just-in-time feedback, pathways, and resources.

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Mursion / simSchool Comparison

Based on Information Available as of June 30, 2020

MURSION		simSchool
45	Number of student profiles available	10 TRILLION
NO	Provides PK students	YES
NO	Provides Special Education Students	YES
NO	Provides English Language Learners	YES
NO	Measures Implicit Bias	YES
As digital puppets / human-controlled	How simulated students function	Independent AI
28	Number of simulations/ scenarios currently available	300+ infinite variations
$10-$15,000	Cost to create new custom simulations	$250
6-8 weeks	Time required to create new custom simulations	72 hours
$10,000 – $20,000	Average annual cost per institution	$3,750
08:00 AM - 10:00 PM EST, M-F*	Availability	24/7
Online scheduling for interaction with actor	Process for accessing	on demand
Live observation or review of video	Process for monitoring student progress	Live Dashboards, automated reports
YES	Minimum number of students required	NO
$149 for 30 minutes	Average cost per year per student	$25 total per year, unlimited minutes
cost of staff for live observation	Average institutional overhead to monitor sims	progress tracking is automated

Specific benefits of technology use in field experiences are identified in a recent review of literature (Hixon and So, 2009) including:

a exposure to various teaching/learning environments

b creation of shared experiences

c promoting reflectivity

d preparing students cognitively.

Christensen, Rhonda & Knezek, Gerald & Tyler-Wood, Tandra & Gibson, David. (2011). simSchool: an online dynamic simulator for enhancing teacher preparation. IJLT. 6. 201-220. 10.1504/IJLT.2011.042649.

simSchool: an online dynamic simulator for enhancing teacher preparation

As a result of the study, several observations were made:

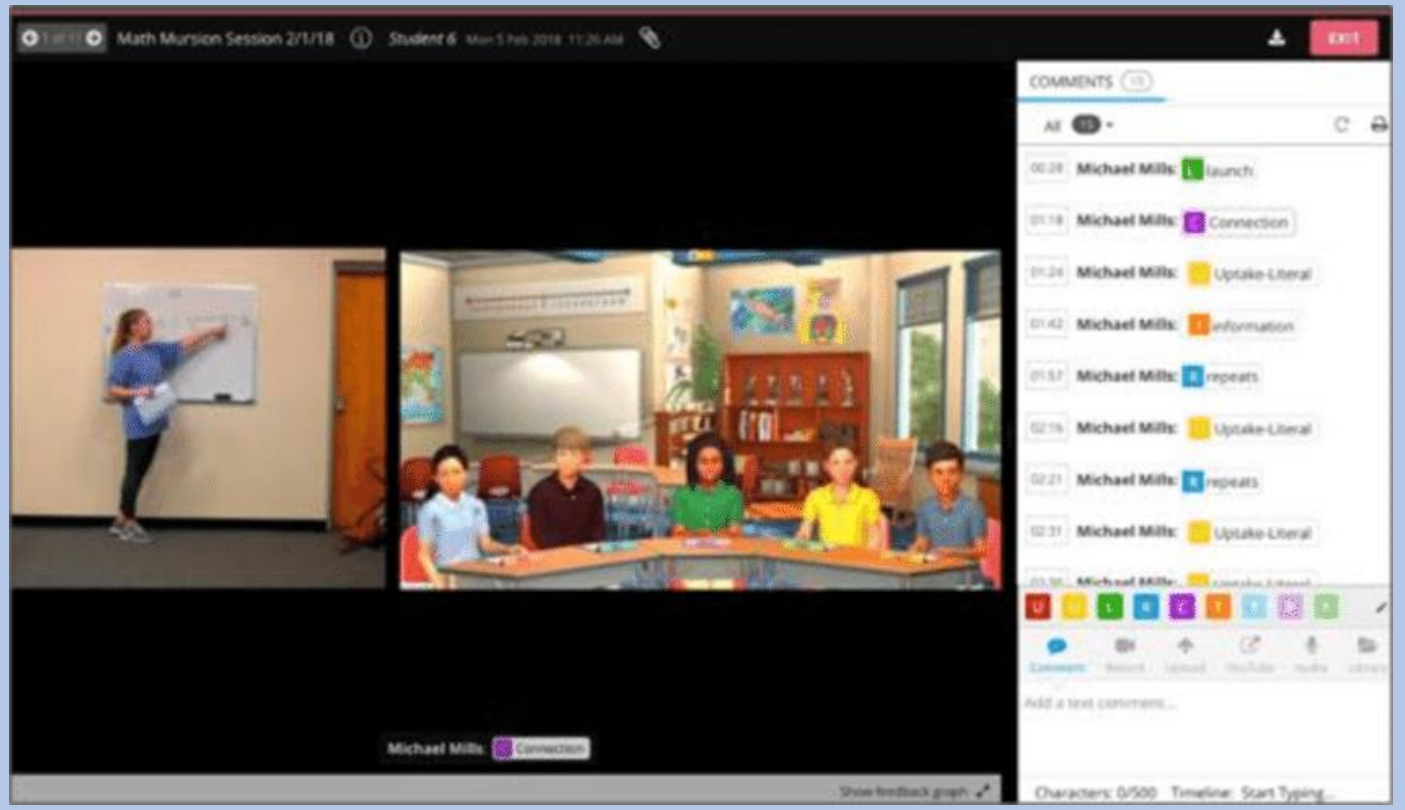
- Safety of the simulated environment. Teacher candidates felt comfortable trying teaching strategies with simulated students without fear of serious consequences on the learning of actual children.
- Support materials. Information sheets, web resources, and textbook resources were perceived by the teacher candidates as useful in developing their own pedagogical knowledge and applying theory to classroom practice.
- Embedded thinking tools. An open comment section allowed students to 'blog' directly into the system and provide reflections on what they were learning.

Katana Simulations

Christensen, Rhonda & Knezek, Gerald & Tyler-Wood, Tandra & Gibson, David. (2011). simSchool: an online dynamic simulator for enhancing teacher preparation. IJLT. 6. 201-220. 10.1504/IJLT.2011.042649.

Affect in Embodied Agents

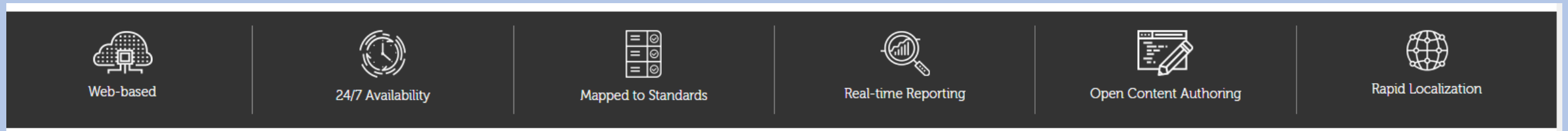
Previous studies have found the value of including non-verbal communication channels in embodied agents [14], the audiovisual signals made it easier for users to perceive the internal state of an interactive system. For example, projecting uncertainty in a Question & Answering system.



THE FUTURE: Embodied agents with emotional intelligence

Embodied agents with emotional intelligence were considered more human-like, engaging, and trust-worthy Compared with an emotionless Multimodal Technology interaction users rated higher subjective scores when they worked with affective agents. They also spent more time interacting with these agents and indicated they were more willing to use the agent in future interactions.

Wang, H.; Gaddy, V.; Beveridge, J.R.; Ortega, F.R. Building an Emotionally Responsive Avatar with Dynamic Facial Expressions in Human—Computer Interactions. Multimodal Technol. Interact. 2021, 5, 13. https://doi.org/ 10.3390/mti5030013



Conclusion:

In Virtual learning environments teacher candidates are able to grow and receive real-time feedback, mentoring, and have time for trial and error without adversely affecting the academic or social growth of any students.

(Training Teachers in Virtual Environments Dr. Anni K Reinking Dr. Barbara Martin Southern Illinois University Edwardsville)

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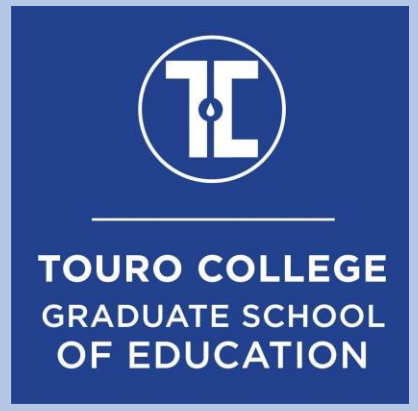

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