Scale Simulation-Based Learning with AI



Pedagogy, Learning, and AI in Your Classroom Series

Objectives: After this workshop, learners will be able to…

- Define and identify types of simulations within a classroom setting.
- Discuss the potential learning benefits of simulations.
- Explain key elements of simulations, including fidelity and validity.
- Examine a case study discussing the integration of scale simulation-based learning with AI in a business course at the Carey School of Business.
- Identify other opportunities for scale simulation-based learning with AI in a variety of courses.

Designing Simulations for Learning

Defining Simulation in an Educational Setting

A learning activity that provides a safe and cost-effective analogy of a real-life situation in which learners can achieve specified competencies and objectives.

(Rushby, p. 19)

Rushby, N. (2016). Metrics for learning from simulations (and perhaps games). *Educational Technology, 56*(5), 17–26.

Simulation in Action

- Case-based simulations
- Role-Play
- Scenario-based
- Tabletop exercise
- Branching Simulation
- Computer/Digital Simulation
- Game-based Simulation
- Mock Situations (Elevator Pitch, Press Conference)
- Simulation Lab
- Immersive/VR (Virtual Reality) Simulation
- XR (Extended Reality)

Why Simulations Are a Powerful Learning Tool

- Encourage Perspective Building
- Create a Safe Space to Make Mistakes and Learn
- Support Constructivist Learning and Engagement
- Develop soft skills (collaboration, communication, leadership) and/or technical skills

Glasgow, S. M. (2014). Stimulating learning by simulating politics: Teaching simulation design in the undergraduate context. *International Studies Perspectives, 15*(4), 525–537. https://doi.org/10.1111/j.1528-3585.2012.00501.

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Key Elements of a Simulation

- Learning objectives or outcomes
- Performance Indicators
- Measurement of Effectiveness *(Rushby, 2016)*
- Feedback
- Debrief



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Elements to Consider in a Simulation: Fidelity

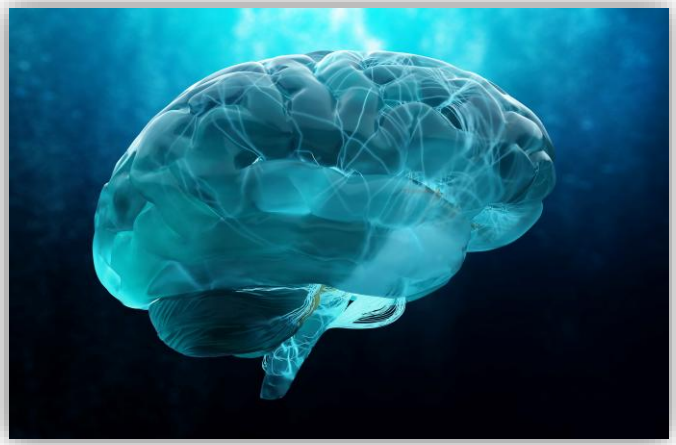
Primary Types of Fidelity (Degree of Accuracy)	Levels of Fidelity
► Physical	► High
► Conceptual	► Medium
► Psychological	► Low
	► Warning: MORE FIDELITY DOES NOT NECESSARILY CREATE A BETTER SIMULATION

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Elements to Consider in a Simulation: Validity

- Validity: Convince learners that they are responding to a real situation.

- Cognitive Flow
  - Concrete Goals, Manageable Rules
  - Achievable Tasks
  - Clear and timely feedback
  - Diminish extraneous distraction



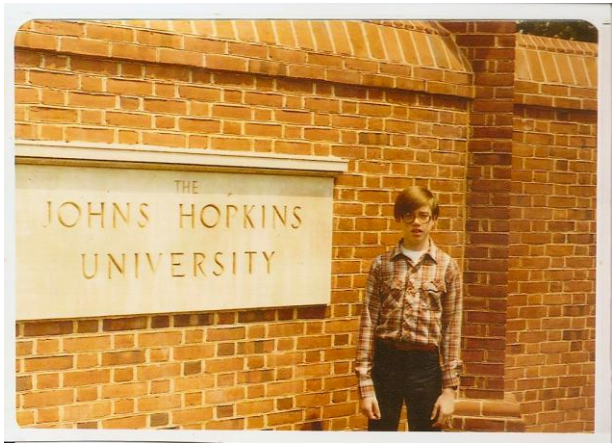
Baron, S. (2012). Cognitive flow: The psychology of great game design. Game Developer.

Case Study: Dr. Davina Frick

Youthful Vision (1985)

- Imagined programming a role-playing game
- Technology
  - Apple IIe
  - BASIC and Pascal

- Context
  - Dungeons and Dragons
  - 4-, 6-, 8-, 10-, 12-, and 20-sided dice
  - Dragons, ogres, dwarves, and elves



2026 Reality

- Problem
  - Teaching Business Leadership and Human Values
  - Traditionally used text only, linear slide progression, decisions with values exercises
  - Desired a more interactive learning process
- Technology
  - Discovered Twine
- Progress
  - Chatted with colleagues including Brian and Lauren
  - Practiced using AI
- Achievement
  - Used AI to help program one world with 8 mini-campaigns over the summer

World

- Powell River Medical Center
- Regional map
- Map of campus
- Demographics

- 14 C-Suite or just below C-suite recurring characters
- 8 realistic scenarios

What I Needed to Start

- Idea of overall world that could hold multiple scenarios

- Outline of each scenario
  - Setup
  - Choices
  - Characters
  - Helpful image ideas
  - Helpful audio

- Knowledge of AI
  - What it needs to be told
  - How it can help me build a story

Characters

- Chief Executive Officer (CEO), Chief Marketing Officer (CMO), General Counsel, Chief Financial Officer (CFO), Chief Well-Being Officer

- Each character has a biography

- Characteristics
  - Directness, Inclusiveness, Risk Tolerance, Respect for/expectation that others will respect authority
  - Each ranges from 3-18
  - Each character has a defined subrange

Student Experience

- Student does not know values recurrent characters have
- Values are used in formulae to choose statements and actions
  - All pre-programmed

Mini Campaigns in Chronological Order

- Conditional pass of inspection before opening of children's hospital
- Data versus less formal communication in planning an event
- Discipline for an employee after a safety risk for children
- Withdrawal of funding for a community outreach program
- Challenge to regional workforce training
- AI-based interpretation of surgery
- Choice of site for an off-campus facility
- CEO deciding whether to take an overseas position

AI and Me

AI	ME
▶ Tracking character traits ▶ Developing equations for probabilities ▶ Pressure testing situation ideas ▶ Brainstorming story architecture ▶ “Graphic novel panel” development ▶ Programming	▶ Overall arc of the stories ▶ Humanizing stories ▶ Developing characters ▶ Developing reflection questions ▶ Fine tuning panels ▶ Always have “veto power”

Current and Next Steps

Current

- One student playing one character on their own machine
- Student downloads HTML file and uploads TXT file
- Audio included as proof of concept

Next Steps

- Greater use of audio
- Build directly into Learning Management System (SCORM)
- Remote team working to play one character (server)
- Remote group playing different characters (server)
- Generative AI to expand range of options/conversation (bot)

Case Study: Dr. Jamie Young

References

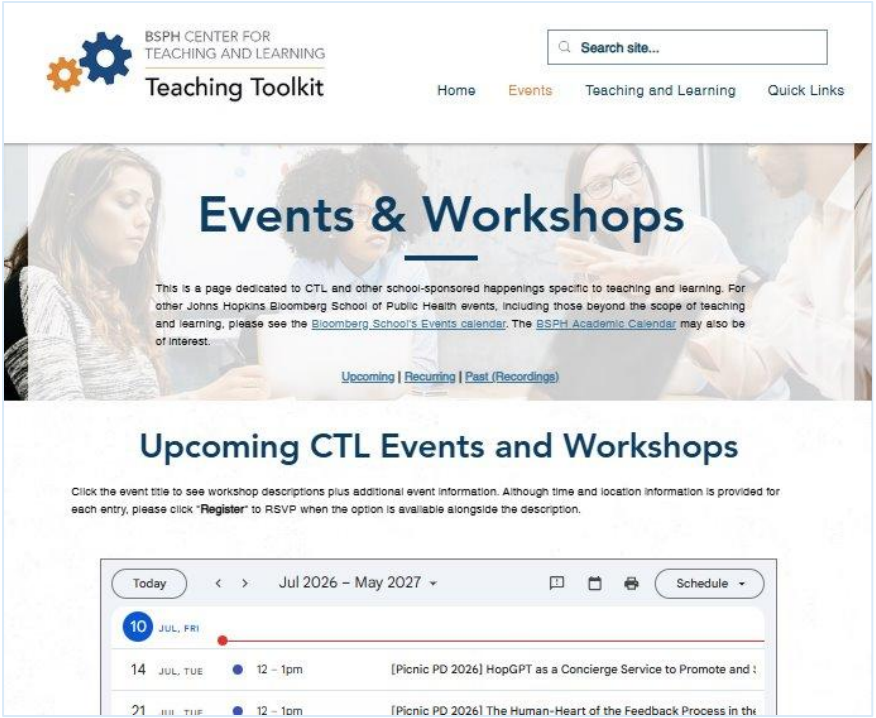
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Please complete the survey using the QR code to the right or the link in the chat!

BSPH CTL: Teaching PLAY Event Evaluation AY26-27

Future CTL (and PLAY) Events



Q&A

