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Designing interactive, non-linear simulations using generative AI and Twine

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Keywords

Generative AI, Educational Technology, Interactive Learning Design

Abstract

Background: Interactive simulations are effective for engaging learners and fostering critical thinking, decision-making, and problem-solving skills. Twine, an open-source tool for creating nonlinear, interactive stories, typically requires some coding knowledge to unlock its full potential. It publishes content as an HTML file that can be posted in any learning management system. However, with the support of generative AI tools like ChatGPT, educators can generate the necessary code to build and enhance Twine projects, making the creation of complex, interactive narratives more accessible to those with limited coding experience.

Research Question/Innovation/Goal: This workshop aims to empower educators and learning experience designers to create engaging, interactive simulations using Twine and generative AI. By leveraging AI to generate code, participants will be able to design non-linear learning scenarios and develop narrative content tailored to their subject areas, even if they have little to no prior coding experience.

Methods: The workshop will blend demonstration, guided practice, and hands-on exercises. Participants will be introduced to Twine's interface and learn how to create interactive story pathways. They will also see how generative AI tools can support scenario development, generate context-relevant prompts, and produce dynamic feedback. Each participant will have an opportunity to create their own mini-simulation by the end of the session.

Impact/Effectiveness: By providing participants with both conceptual knowledge and technical skills, this workshop aims to equip educators with the tools they need to create interactive simulations in Twine. Attendees will walk away with a functional prototype of a simulation they can refine and implement in their educational contexts. Findings/Results: The workshop will showcase examples of Twine simulations enhanced with generative AI, including use cases in health sciences education. Insights from a pilot conducted during the Winter 2025 term within a Master of Nursing Education program will be shared, highlighting student feedback on the effectiveness and engagement of the scenarios.

Diversity, Equity, and Inclusion (DEI): Interactive simulations can support diverse learning needs by enabling self-paced, student-driven exploration of content. Additionally, generative AI can be used to create culturally inclusive narratives and provide personalized support. The workshop will include a discussion on ethical considerations, including mitigating bias in AI-generated content and ensuring equitable learning opportunities.

Possible Applications: Participants will leave the session with a functional, adaptable non-linear simulation that they can customize and integrate into their own teaching. This approach has broad applicability across various educational contexts, enabling educators to create immersive, interactive learning experiences tailored to their unique instructional needs.

Active Learning Strategy:
The workshop will follow a "learn-do-share" format to actively engage participants.
- 0:00 - 0:05: Brief introduction to workshop goals, learning objectives, and key concepts.
- 0:05 - 0:20: Live demonstration of Twine and generative AI integration, showcasing how the tools work together to create interactive, non-linear simulations.
- 0:20 - 0:40: Guided practice session where participants work in pairs or small groups to create a short, non-linear simulation with personalized, AI-generated narrative elements.
- 0:40 - 0:50: Discussion session and Q/A.

Learning Objectives

By the end of this workshop, participants will be able to:
- Design an interactive, non-linear learning pathway using Twine.
- Utilize generative AI to create context-sensitive narrative content for simulations.
- Implement decision-branch logic within Twine to create multiple learner pathways.
- Apply ethical considerations to mitigate bias in AI-generated content for simulations.
- Produce a functional interactive simulation for educational use.