ASCILITE 2026
The Future is Connection:
Collaboration, Creativity and Compassion in a Digital Society

Chain reaction: Building AI resilient assessments through LoFi gamification

Pete Fernandes, Paul Childerhouse, Tram Nguyen, Jairus Bowne
RMIT University

Supply chain and logistics management education has traditionally relied on static case studies and written reports for assessments. However, these conventional methods often fail to prepare graduates for the messy, real-world volatility of global supply chains. At the same time, the rapid rise of generative artificial intelligence (GenAI) has created an "enforcement illusion" in higher education, where traditional academic integrity policies rely on compliance mechanisms that are fundamentally unenforceable against sophisticated AI tools. As regulatory bodies like the Tertiary Education Quality and Standards Agency (TEQSA) urge universities to shift from superficial policing to structural redesign (Corbin et al., 2025; Perkins et al., 2025), educators face a wicked problem: how to design assessments that validly evaluate higher-order decision-making while remaining resilient to AI plagiarism.

This presentation introduces Chain Reaction, a low-fidelity (LoFi) strategic procurement simulation designed to cultivate systems thinking and provide a secured, authentic assessment framework. Developed within the "LoFi Games" initiative, the simulation uses accessible, low-barrier technology to deliver a highly scalable learning experience. The game aims to position students as procurement leaders by allowing them to navigate weekly decision cycles where outcomes are dictated by the compounding, dynamic impact of their previous choices. This functions as a real-time scenario generator that introduces different levels of data as well as unpredictable disruptions that mirror authentic industry volatility and force students to manage complex trade-offs in real time.

The pedagogical design is driven by context-based gamification, which embeds learning mechanics directly into a highly relevant, career-specific environment to deepen authentic assessment (Dichev et al., 2017). Rather than analysing concepts in isolation, students use the game to manage real-world interdependencies like supplier relationships, lead times, inventory costs, and risk mitigation. A distinctive contribution of this model lies in its AI-secure assessment architecture. While GenAI can easily generate polished, high-level business strategies, it cannot replicate the situated judgment required within a dynamic simulation. Assessment shifts entirely from evaluating static written reports to evaluating the live justification of student decisions within unique game states. Through a live showcase, students must verbally defend their operational decisions under academic scrutiny, replicating industry pressure. Since every student's gameplay history is entirely unique, opportunities for inappropriate AI assistance are substantially reduced.

The preliminary results of this work in progress were promising with quantitative data from the course experience survey showing a +0.44-point increase in the clarity of industry expectations and a +0.42-point increase in overall learning experience quality. Qualitative feedback strongly backed these metrics, with students indicating a profound shift toward highly applied, deeply engaging learning that bridges classroom theory with workplace reality.

This initiative contributes to the broader Technology Enhanced Learning and gamification literature by moving beyond the traditional view of games as mere motivational tools (Zeng et al., 2024). Instead, it aims to provide a blueprint for utilising context-based gamification as a formal framework for structural assessment design. It advances the ongoing dialogue on academic integrity in the AI era by demonstrating how shifting from static, text-based deliverables to dynamic, process-driven, and state-dependent live justifications can successfully future-proof assessment validity and build robust professional capability in an AI-enabled world.

Keywords: Gamification, secured assessments, AI resilience, skill development, technology

enhanced learning

References

Corbin, T., Bearman, M., Boud, D., & Dawson, P. (2025). The wicked problem of AI and assessment. *Assessment & Evaluation in Higher Education*. Advance online publication. https://doi.org/10.1080/02602938.2025.2553340

Corbin, T., Dawson, P., & Liu, D. (2025). Talk is cheap: Why structural assessment changes are needed for a time of GenAI. *Assessment & Evaluation in Higher Education, 50*(7), 1087–1097. https://doi.org/10.1080/02602938.2025.2503964

Dichev, C., & Dicheva, D. (2017). Gamifying education: What is known, what is believed and what remains uncertain: A critical review. *International Journal of Educational Technology in Higher Education, 14*(1), Article 9. https://doi.org/10.1186/s41239-017-0042-5

Perkins, M., Roe, J., & Furze, L. (2025). Reimagining the Artificial Intelligence Assessment Scale: A refined framework for educational assessment. *Journal of University Teaching and Learning Practice, 22*(7). https://doi.org/10.53761/rrm4y757

Zeng, J., Sun, D., Looi, C.-K., & Fan, A. C. W. (2024). Exploring the impact of gamification on students' academic performance: A comprehensive meta-analysis of studies from the year 2008 to 2023. *British Journal of Educational Technology, 55*(6), 2478–2502. https://doi.org/10.1111/bjet.13471

Fernandes, P., Childerhouse, P., Nguyen, T. & Bowne, J. (2026, Nov 29 – Dec 2). Chain reaction: Building AI resilient assessments through LoFi gamification [Poster]. In Cochrane, T., Narayan, V., Poole, T., Lai, P., Lake, P., Moore, O., & Li, L. (Eds.), *The Future is Connection: Collaboration, Creativity and Compassion in a Digital Society*. Proceedings ASCILITE 2026. Brisbane (pp. 14–15). https://doi.org/10.65106/apubs.2026.3121

Note: All published papers are refereed, having undergone a double-blind peer-review process.
The author(s) assign a Creative Commons by attribution license enabling others to distribute, remix, tweak, and build upon their work, even commercially, as long as credit is given to the author(s) for the original creation.

© Fernandes, P., Childerhouse, P., Nguyen, T. & Bowne, J. 2026