

Why students engage in simulation and how it prepares them for work

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Presentation abstract

In the future, learning will take the shape of a story, a play, a game; involving multiple platforms and players; driven by dialogue and augmented with technology, an interplay of immersive experiences, data, and highly social virtual worlds (Lee et al., 2021).

Employers seek graduates who demonstrate attributes that organisations require to develop in the future. As students transition out of higher education, they should have the 'abilities and capabilities to maintain employment' (Asiri et al., 2017 p. 2). The transition out of university can be perceived as particularly stressful, with uncertainty about what is required for a successful career (Jackson and Tomlinson, 2020). This is exacerbated in the post Covid-19 environment when, even as the graduate job market has started to recover, students' confidence about finding a job after graduation remains low (Curnock Cook, 2022). Our simulation methods are aligned to the theories that underpin these transitions, and designed to support students 'becoming' professionals in their field. Simulations can be designed for cognitive absorption, the psychological concept of flow and deep absorption in learning (Kukulka-Hulme et al., 2022). Premised on the innovation of best learning moments, the student tasks shared in this workshop engender deep involvement, through memorable learning activities. This reflects the 'ways of working' of the Learning Development (LD) community, and evidence suggests that reflective practice,

learning complex skills and scaffolding learning are the transferable aspects of these technologies (Chernikova et al., 2020).

Widening participation research has provided evidence that students' movements in and out of experiences such as care, work and studies are dynamic, non-sequential and context-dependent (Holley and Priego-Hernández, 2021). With the move to hybrid learning, students want their learning materials to be well-designed. However, 43% of students do not perceive their learning materials to be engaging/motivating (Killen and Didymus, 2022). Immersive technology and simulation may offer the solution to this disconnect, as simulations offer an immersive and embodied experience (Bayne 2004; Bayne et al., 2019). Signature pedagogies (Thomson et al., 2012) for professions can provide a means for institutions to achieve the requirements of Office for Students' B3 (2022) which is now assessing student continuation, degree outcomes, including differential outcomes for student characteristics, and, framing this workshop, graduate employment and progression to professional jobs and postgraduate study.

Learning Developers have a pivotal part to play operationalising actions that result into students' graduate outcomes, and responding to this, our workshop invited participants to experience three types of simulation: a) a business game; b) a mass casualty evacuation; and c) a community project responding to a scenario.

Keywords: simulation, graduate skills, transition into work

Community response

What was clear from this workshop was that simulations and games do not have to involve advanced technology, augmented reality or complex and specialist recreations. It is the principles behind the simulation that are important for learning: teamwork and decision making in a complex, fast-paced environment. And it is the impact on students' absorption into a subject, their immersion in the 'flow', that makes it so memorable for learning; a flow experience in game-based learning has been shown to improve student performance (Hsieh et al., 2016).

The session offered three case study activities to engage learners in interactive and playful learning, through using workshop activities and technology enhanced learning. After attending workshops mainly on Lego in this area, it was fantastic to see traditional 'pen and paper' methods for this session, as well as YouTube 3D to engage participants. It was probably one of the most active (and shattering) workshops I have ever attended!

Editorial comment

As active and experiential learning has gained increasing currency in higher education learning and teaching, so too have simulations, with an expanding typology covering computer-mediated games and training, role play, and non-computer-based simulations such as paper-based puzzles, board games and field experience (Lean et al., 2006). While simulations give students the opportunity to immerse themselves in a real-world scenario, deploying the skills they would need in their future profession (an 'approximation of practice' for Chernikova et al., 2020, p.500), it also supports the development of teamwork, communication and decision-making skills, amongst others (Vlachopoulos and Makri, 2017). Nevertheless, their implementation is not always problem-free, with support needed to overcome the predominant barriers of suitability, resource and risk. Moizer et al (2009) propose a range of internal and external support mechanisms identified to achieve this, including time, training, and practice sharing both internally and externally. This emphasis on relationships, networking and mutual problem solving is reflected in the affordances of simulations themselves, and indeed, there are few subject areas that could not benefit from their integration into learning and teaching (Chernikova et al., 2020).

Authors' reflections

We were really pleased that all three simulations worked equally well, and observed the participants being fully 'in the flow' and engaged with their activities. We wrote a [background briefing paper](#) (Goldsmith, Biggins and Holley, 2023) about how and why learners may find simulation an active and deep learning experience, and the following extract provides the context for our workshop design:

Well-designed simulations of situations that students may face in future professional life can facilitate deep learning and engagement and can constitute “optimal learning moments” or OLMs (Schneider et al 2016). Drawing from the work of Nakamura and Csikszentmihalyi’s (2002) on “flow” or deep, enjoyable absorption in a situation or task, and related to Stephen Heppell’s research on “best learning moments” (Heppell 2013), for Schneider et al (2016, p.415), OLMs are times when students are “most receptive to learning and instruction”. They are triggered by “situational engagement” in which students experience heightened levels of interest, skill and challenge simultaneously. This supports findings from Heppell’s summary of “best learning moments” drawn from a large-scale survey in the 1990s. Heppell identifies a set of common features that characterize these events including active engagement, the presence of a guide or teacher (suggesting scaffolded learning), and the achievement of something difficult (complex tasks producing a personally meaningful output or outcome). Building on work in the field of positive psychology, the pedagogy of best or optimal learning moments is premised on the common-sense notion that people tend to learn more effectively when their interest in and enjoyment of a task is heightened; that is, when they approach learning in a positive mental state.

Three simulations were offered during the workshop:

- The business simulation game saw participants undertaking a business exercise in real-time where they were given an information sheet containing data about production qualities and raw material requirements and tasked to optimise the output within the capacity constraints of the organisation.
- The ‘Godzilla’ mass casualty evacuation offered participants the opportunity to view a range of scenarios in 360 degree video and invited them to consider how to adapt an exercise such as this to their own context.
- The community project presented a scenario and asked participants to put themselves into the role of a Community Worker at Portsmouth City Council. Within the role, participants were requested to make a proposal for a community project choosing one of the following social issues: homelessness or domestic violence or unemployment.

We tested participants' agreement with the statements: 'Before this workshop, you thought simulation was a significant element in teaching and learning' and 'After this workshop, you think simulation is a significant element in teaching and learning'. All respondents (N = 9) reported either a positive change in their attitudes about simulation (5; 55.55%), or maintained their initial impression that simulation is a significant element in teaching and learning (4; 44.44%). On average, participants reported an increase in their attitudes from 4.2 to 4.8 on a Likert scale from 1 to 5.

Here we offer a snapshot of the session from the evaluations:

Nice to have a contrasting example of simulation, engaging and useful to experience from the perspective of students.

I'm currently having an inner battle to see where it could fit within my role. I will find a way! Thank you for a fantastic session.

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