



Fun in the formative phase to scaffold success in the summative phase: collaboration between academics and learning technologists to build engaging, fun and authentic practice opportunities

Laura Milne

University of Chester, United Kingdom

Katharine Welsh

University of Chester, United Kingdom

Richard Hind

University of Chester, United Kingdom

Abstract

In the serious space of higher education (HE), there is pressure to ensure that students are engaged and learning; while formerly, this may have been seen as a compulsorily serious business, increasing attention is being paid to how much students enjoy their studies, including as a means to enrich learning and improve outcomes (Whitton and Langan, 2019). This case study draws from the experience of three academics working with learning technologists to deliver game-based and simulation learning through technology. In each case, the work completed relied on a dynamic, collaborative and synergistic approach to learning and technology, with the learning technologist enabling enhanced opportunities for student engagement while reducing the time required from academics. The vignettes discussed are from a range of disciplines and include a volcanic hazard simulation (Geography), a card game to generate practice case visitor scenarios (Social Work), and a board game to emulate stadium policing on a match day (Policing).

This work explores how game-based learning provided enhanced engagement, integrated employability skills, authentic opportunities (QAA, 2024) to practice these core skills, and inspire a state of “flow” (Csikszentmihalyi, 2008) in students encountering their learning activities. It focuses on the collaborative approach between the learning technologists and academics to develop and deliver immersive learning activities, with fun being a motivator

for all parties (staff included). Students can bridge the gap between theory, knowledge and competency, and build their confidence in a way that makes them keen to return for more.

Keywords: game-based learning; fun; transformative learning; third space.

Introduction: finding fun

When last did you have fun while learning something new? Across Higher Education (HE), the trends of student disengagement and mental health crises have become a common thread (Hughes & Spanner, 2019; Otte, 2024). HE has often been characterised as a serious sphere, particularly considering the current context of seemingly unending change (for staff and students), the pressures of the neoliberal university, and scrutiny to key metrics associated with student success (Vlachopoulos, 2021). Considering this, it is almost radical to suggest that there should be joy in learning.

Embedding joy in learning is an opportunity to support students and colleagues alike in making meaning out of their experiences. Fun in learning activities can work to increase engagement and therefore 'stickiness' of key concepts (Inglis, Dawson and Nishioka, 2014; Lands, 2022). In this case, sticky teaching and learning refers to 'knowledge and methods that may be applied in various contexts to enable your ideas to [...] have a lasting effect' (Inglis, Dawson and Nishioka, 2014, p.4), approaches that engage students' metacognition through various factors such as meaning-making or emotional flow (common features of game-based learning). Scenario-based games that students can play in sessions allow them to practice key skills in a low-risk environment, learning from the constant feedback of the game itself, their peers and their academics. Students can use the games to build their independent learning habits and practice, scaffolding towards summative assessment.

In this paper, the authors review their practice at a small (14,000 students) teaching-intensive university in the North West of England. First, it will consider the power of game-based learning to bring joy to learning, to embed fun as a factor contributing to achievement of learning outcomes, and to induce engagement through the flow state

(Alexiou, Schippers and Oshri, 2012; Csikszentmihalyi, 2008;). Then, it will present three vignettes of practice from Geography, Policing and Social Work to discuss how the introduction of a game-based approach allowed staff to create authentic learning and feedback opportunities for their students, building employability skills and creating life-like scenarios to which the students could respond (Rule, 2006). This ‘fun in the formative phase’, rich in 360-degree feedback from self-reflection, peers and lecturers (Tee and Ahmed, 2014) empowers students to approach summative activities with more confidence through practice and engaging feedback. The relationship between the collaborative partners (academics and learning technologists) is a key factor for success in game-based learning projects, and the authors reflect on how this has enriched their work. To conclude, the authors provide recommendations for enhancing the fun in learning activities.

Game-based learning, engagement and finding joy

Learning has the power to be transformative for students and for reflective educators. Mezirow (1997) highlights transformative learning as the process of effecting a change in an individual’s frame of reference, which requires discursive and reflective situating of key concepts and experiences and the development or growth in perspectives and knowledge that result from this activity. When considering playful and game-based learning, educators can create an environment where this transformative activity can occur by fostering autonomous thinking, critical reflection, participation and problem-solving (Mezirow, 1997). Games in HE offer an opportunity for students to test their frames of reference and build new understandings that scaffold longer-term success in learning outcomes through authentic, aligned and transferrable activities (see Alexiou, Schippers and Oshri, 2012; Crocco, Offenholley and Hernandez, 2016; Greipl, Moeller and Ninaus, 2020; Hartt et al., 2020; Kapp, Blair and Mesch, 2013; Vásquez et al., 2017). Creating this type of learning opportunity is not without its challenges for all participants (educators and students alike), but that is actually a good thing – challenge is not in itself a negative element when balanced with scaffolding and support, and in fact, can promote engagement. The concept of flow (Csikszentmihalyi, 2008) in learning considers the balance of ‘challenge’ (to facilitate deep engagement) and ‘skill’. Game-based learning builds from both transformative learning and flow to promote deep motivation (Alexiou, Schippers and

Oshri, 2012). Hamari et al. (2016) reviewed the impact of flow, engagement and immersion within games on learning, focusing on 'challenge'; their results show that engagement and challenge both positively impact learning, with the challenge factor also resulting in increased engagement. Ebner and Holzinger (2007) discuss the importance of challenge and curiosity for student engagement, noting the importance of engagement and fun as game-based elements that support traditional learning approaches (particularly for self-directed learning, replaying the learning game). Crocco, Offenholley and Hernandez (2016) demonstrated that learning games can be powerful in HE contexts to increase enjoyment, reduce student anxiety around learning, and improve deep learning and higher order thinking. More recently, Uiphanit et al (2023) demonstrated higher academic achievement through use of games compared to lectures alone, particularly due to framing the activity around being fun rather than boring.

Whitton and Langan (2019) critique the essential conflation of fun with games, with acknowledgement that 'fun' is discursively constructed, rather than a neutral term, and that in some cases, 'hard fun' involves considerable challenge and even discomfort. Creating a clear and productive sense of "fun" can be challenging in HE, particularly taking into consideration that it is discursively constructed through action, and as such, is prone to influence from social norms, biases and inequalities. HE practices in general are increasingly reviewed through intersectional lenses (Naskali and Keskitalo-Foley, 2016), and while this goes beyond the scope of this case study, readers can consider the power dynamics present in HE teaching and learning context in the form of, for example, race and gender, as these characteristics impact students' and teachers' interpretations of fun and joy in learning. Whitton and Langan (2019) identify 'stimulating pedagogy, lecturer engagement, safe learning spaces, shared experience and a low-stress environment' as factors contributing to fun (p.1010). We assert that contributing elements to these factors might well be found in game-based learning as well, although are not limited to it. Developing this concept, Nørgård, Toft-Nielsen and Whitton (2016) apply the concept of the magic circle in education, where students and staff are able to create a space to 'suspend disbelief and openly explore and experiment with the creation of new knowledge and understandings through playful attitudes and approaches, which remove the fear of failing' (p.1). This space could be a feature of immersive learning opportunities of many kinds, including game-based learning.

Vignettes: play in practice

Vignette 1: volcanic hazard simulation exercise

The volcanic hazard simulation (VHS) is a formative experiential learning opportunity building on previous work (cf. Miller and France, 2012; Miller, France and Welsh, 2015) that used the social media platform, Yammer, to facilitate two VHS exercises (one 'practice', one 'real') with groups of 10-25 students. Using Yammer, staff members would play different roles within the simulated community (for example, politician, local business owner, media) and students would work in teams playing the role of an emergency planning team. The purpose was (i) to give students an authentic experience of participating in a simulation exercise, (ii) to further students' understanding of risk communication pathways (for example, to whom and when they should respond), and (iii) to encourage students to engage with and become familiar with materials necessary for their summative assessment later in the term. These elements contribute to the stickiness of the learning, requiring response and application in a simulated context, and the immersive experience of time-based prompts relating to risk adds the requirement for the application of skill in the face of challenge, which is an example of flow at work.

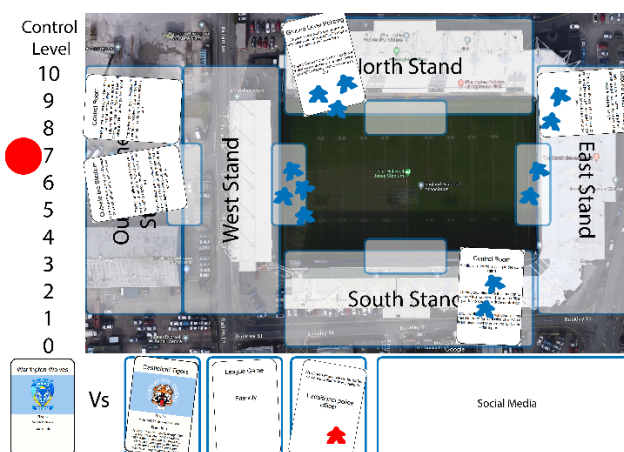
More recently, the VHS exercise has been updated. Firstly, content was moved to Microsoft Teams due to student familiarity with the platform. Secondly, rather than focusing on one or two in-class simulations, in conjunction with the learning technologist, automated prompts were set up in Microsoft Teams so that students could practice their responses to different characters over six- to eight-week period in their own time, thereby increasing flexibility of learning and opportunity for formative feedback ahead of 'eruption day' and saving staff time. Students anecdotally indicated that they liked the formative opportunities but did not like responding to the prompts in their own time. For the forthcoming year, additional sessions will be timetabled so that students can respond to the prompts in class time and formative feedback can be given in real-time to alleviate uncertainties students may have.

Students often describe the simulation as 'fast-paced' and 'stressful' but also 'realistic' and 'fun' (Miller, France and Welsh, 2015, p.11, Figure 7). Creating a pressured environment to simulate the effects of a crisis situation but building that within a formative 'safe space' offers students an opportunity to make—and learn from—mistakes without penalty. With

the inclusion of automated prompts, anecdotally, students appeared to be more prepared for 'eruption day' compared to previous years as they were given more opportunities to engage with the resources needed for their summative assessments throughout the six to eight weeks of automated prompts and associated formative feedback. The reflective exercise undertaken after 'eruption day' helps students to think critically about many of the elements needed for their summative assessment later in the term.

Vignette 2: leadership and decision-making for Policing students

The policing board game focuses on key skills related to leading and managing people, including decision-making and situational analysis in the context of team-management (simulated through small teams within a wider cohort of around 25 students) during a simulated rugby match. The main tenets of the game were constructively aligned around the module's learning outcomes relating to motivation, team working and time management. Students have access to preparatory content, including a navigable 360-degree image of the Warrington Wolves stadium, and immersive virtual reality (VR) content including 360-degree video footage and sound. The culmination of the students' simulated experience is the board game (see Figure 1 below), during which their skills and knowledge from the preparatory work informs their decisions during the simulated rugby match that they are working to police and run crowd control. Students are placed into groups with a nominated Match Commander, and given a set number of pieces representing police officers (see Figure 1 below for example of distributed police officers) along with eight event cards (either academic-curated or randomly selected from a deck) to dictate the events over the course of the match. Each event card presents the group with a situation that could occur inside or outside the stadium, along with instructions for how they can respond, and discussion points. To increase engagement and emulate working conditions associated with time constraints of a match situation, cards are released at timed intervals (see ecological elements such as time and chance in Toda et al, 2019).

Figure 1. Example of Policing simulator in play

The timed conditions and team roles associated with the game allow for 360-degree feedback, in terms of peer feedback during discussions of appropriate actions, feedback from the academic (acting as the ‘Gold Commander’ to which the student match commander reports), and as a function of game-based consequences. In this fun simulated context, students can test their leadership approaches and skills in a safe manner before they progress to work-based placements or graduate roles.

This work builds towards summative activities in terms of the learning outcomes for given modules around crowd management, team leadership and time-bound decision-making skills. The 360-degree feedback and opportunity for discussion and reflection also contribute to the students’ development as reflective professionals in a demanding career.

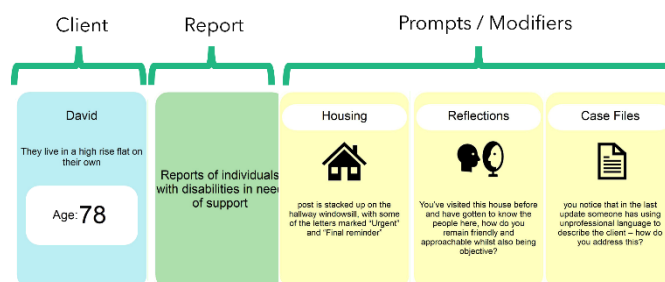
Vignette 3: Social Work case visit placement preparation

Social work students often learn through placements, which can be far removed from the theory of the classroom. For this game-based learning activity, the learning technologist collaborated with the academic to create a card game for the 25-student cohort, that generates a simulated, evolving home visit with a social work client. The aim of this activity is to prepare students for placement learning, either through group conversations drawn from the scenario, or as a solo activity to practice personal responses to home visit

situations. For this game, students receive a deck of cards sorted into several categories, including clients, case notes and modifiers (see example in Figure 2 below). Students

draw a client card and a case notes card, which provide them with details about the home visit (such as the name, age and living arrangements of the client, and previous case notes or reports relevant to the discussion). Then, they draw a pre-determined number of cards from the modifiers deck, which are events that happen whilst they are at the client's home, simulating events and observations that happen in a placement. Modifiers are broken into themes (Personal, Housing, Case Notes and Reflections) giving the students chances to discuss the client and regulatory issues, along with their own reflections on their role as a social worker. Additional booster packs of modifier cards can be added to include new themes as modules progress, allowing more complex themes and issues to be added to the foundations of the game.

Figure 2. Example hand for the Social Work placement simulator



Due to the permutations and combinations of cards drawn, each situation generated in the game would be unique to the player. This provides an opportunity for 360-degree feedback from peers or academics (in group play context) through discussions. Academics can base formative assessments on the scenarios generated, allowing the students to work on their presentation skills or written case notes. The scenario enables students to develop skills required for this simulated home visit (including responsive management of evolving situations) and for any subsequent case-note write-up or discussion with a broader social work team, and provides an opportunity for students to engage in authentic activities that are similar to their future work. By introducing a fun and safe formative exercise, core skills are scaffolded for placement and summative assessment. Anecdotal responses from the

pilot cohort included a desire to get hold of a copy of the game for future replays to support preparation for assessments and placements.

Authenticity and scaffolding success in the summative

These vignettes demonstrate how academic colleagues have collaborated with learning technologists to provide game-based opportunities for their students to practice a range of skills in authentic contexts. The game-based scenarios bring the opportunity for a multitude of potential situations for students to respond to, practically demonstrating their theoretical knowledge and skills in the face of challenge (inducing flow state), receiving feedback from either the game mechanics (for example, loot rewards or consequences for less optimal choices) or from peers and academics. With this optionality in play, learning can be messy: no longer as linear as a rote-learned skills test. This fosters higher-order thinking and critical approaches for students, and the games can offer them a workshop environment to test and practice employability skills. Blaj-Ward and Matič (2021, p.328) describe authentic assessment as ‘involving the application of knowledge to a real-life situation and in response to a real need’; through game-based learning, these scenarios allow students to practice in work-like contexts. Assessment is often the highest stakes element of studies for students, and as such, is a cause and exacerbator of anxiety and stress for many. Whitton and Langan (2019) flag stress as a detractor from fun and enjoyment in studies, where students associate stress with the pressure of assessment; this often results from time management constraints and a lack of control. The game-based approaches implemented above allow students to take back some control and trial their approaches, in a context that provides rich feedback on their actions. By focusing on this formative feedback in a fun context of a game, students can build towards confidence in skills and knowledge and repeated/repeatable practice of applying skills in complex situations, which could scaffold success in their summative assessments.

Power of collaboration: academics and learning technologists

The sum is greater than the parts when learning technologists and academics collaborate to create fun learning opportunities that build towards successful achievement of key

learning outcomes. Here, the contributing authors reflect on how collaboration has impacted the rollout and success of game-based learning. Collaboration between learning technologists and academics is mutually beneficial, bridging between expertise of tools

and technology (learning technologist) and strong subject-expertise and a knowledge of how students learn in that subject. As one author (from the Digital Education team) puts it:

We've got a toolbox loaded to transform learning with technology; academics have subject knowledge, and knowledge of their students, but might be a bit intimidated by the raft of technology options.

Co-design of game-based learning can break down academics' hesitancy to experiment with new tools and technology; having a collaborative learning technologist on hand provides support and iterative development for the games based on feedback from playthroughs. This quick turnaround is satisfying for colleagues and students, and builds into a powerful feedback loop supporting engaged learning and assessment.

One author (a learning technologist) described the process of conceptualising a learning game as 'filtering the learning outcomes through a lens of gamification taxonomy' (see Toda et al, 2019) and 'tabletop game mechanics' (see Engelstein and Shalev, 2019), ensuring that the resultant product is level-appropriate and engaging.

One author (an academic) reflected the following benefits of collaborating on a game-based approach with a learning technologist:

[The collaboration] enabled me to fuse my approaches to enhancing teaching with the expertise of someone who had the necessary technical expertise to make my vision happen. As a result, the students now get more formative opportunities for feedback and can practice their responses in their own, non-timetabled time, to enable greater flexibility of learning. Additionally, staff time has been saved [through higher levels of automation]. Without [the collaborative partnership with the learning technologist], it would have taken me an unreasonable amount of time to develop this experience. The enthusiasm of the learning technologist throughout felt supportive; they were always keen to find out how the students had responded and reflected in partnership with the academic team to work out how the experience could be improved.

The partnership between the academic and learning technologist was based on true and equal collaboration:

I think it worked so well because there was a mutual enthusiasm, curiosity and trust between us. We were both equally invested in the project and had equal opportunities to lead with our respective expertise. I think really listening and working towards a common goal is key to success. (Academic partner)

Our experience shows that supported academics have more fun with new tools and technologies. Reducing fear around changing technology leaves more time to find the joy in learning, teaching and assessment for all involved.

Conclusion and recommendations for fun

Game-based learning offers a mechanism through which fun can be facilitated thereby leading to deeper learning and enjoyment for the students (and often the academic, too). Our primary recommendation for creating bespoke learning games for new contexts is reducing the complexity of game mechanics to the minimum viable approach, because the more 'moving parts' in terms of game rules for both lecturer and student, the harder the game will be to teach or engage with; complexity can be iteratively added in line with the intended learning outcomes.

In terms of future research, recommendations for continued investigation of fun in the formative phase would include attention to the power dynamics at play and potential for intersectional review of game-based learning in HE. Creation of fun in the formative phase of assessment offers students a seemingly informal way of receiving ongoing formative feedback which has the potential to build confidence and deepen understanding for the summative assessment, which could also prove rich ground for future research. In our experience, the fusion of the learning technologist and academic partnership offered a richer overall experience which could save staff time, make more effective use of technologies to enhance the student learning experience and ultimately create the opportunity for fun within learning.

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Author details

Laura Milne is Head of Digital Education at the University of Chester. She is a Fellow of Advance HE, an Associate Certified Member of the Association of Learning Technologists, and has been active in digital education in the UK, USA and South Africa. She manages the Digital Education team, supporting pedagogic and technological innovation in learning,

teaching and assessment. Email: laura.milne@chester.ac.uk, LinkedIn: Laura Milne,
Bluesky: @lauramilne.bsky.social

Katharine Welsh is an Associate Professor of Academic Innovation in Geography, and University Innovation Fellow within the Centre for Academic Innovation and Development at the University of Chester. She is a Senior Fellow of Advance HE and was awarded an Advance HE CATE award in 2018. Email: k.welsh@chester.ac.uk, LinkedIn: Katharine Welsh.

Richard Hind is a Senior Learning Technologist at the University of Chester, working in the Centre for Academic Innovation (CAID), creating and curating work for academics and professional services. Rich is an Associate Fellow of AdvanceHE. His current focus is research into Game Based Learning and Immersive Learning, and creating innovative ways for learning material to be presented to students. Email: r.hind@chester.ac.uk, LinkedIn: Rich Hind

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