



Gamification and Technology in Higher Education

An article written in
partnership with Angela
Short from Dundalk
University

How technology can help students gain essential skills experience.

In the educational sphere, we live in slightly strange times - one foot tentatively placed in the digital age, while the other remains entrenched in the past, clad in a wellington boot and submerged in thick mud. Despite the meteoric rise of technology and smart devices in other areas of our lives, it has been slower to take hold in education. There are many good reasons for this – and if not good reasons then legitimate excuses. We’re looking at big change in the medium to long term, and that’s not easy. As transdisciplinary Behavioural Scientist Dr. Richard Claydon puts it: “Pretty much every one of us is sitting in this transformational gap. It is not a comfortable place. In fact, it is extremely discomfiting [...] the volatile, uncertain, complex and ambiguous environment and the relentless, never-ending change that characterises the contemporary world - has left us psychologically short-handed.”¹

Yet there is simply no escaping the fact that Higher Education has once more reached a point in its evolution (as it has done during previous industrial revolutions) where it is necessary to re-evaluate what we are doing, why we are doing it, and what value it really offers to both students and ultimately employers.

At our recent Facebook Live Event, Gamification and Technology in Education, Angela Short, Lecturer in Community Development, Groupwork and Operations Management at Dundalk University, highlighted the need for educators everywhere to ask themselves “what kind of curriculum will prepare graduates for an uncertain global future?” There’s no short or easy answer to this, of course – rather it should be a principle that underpins iterative redesign of courses as the next few years and decades unfold.

And while we can’t predict with certainty what new technologies will be around in 20,30 or 40 years (unless perhaps you’re Elon Musk) we do know that by helping students to develop critical thinking skills, and embedding an entrepreneurial mindset, we can help them shift and bend to coming challenges. The need for us to develop these kinds of soft skills was highlighted in the research of both *Rae et al*² and *Hayne et al*³ in 2010, with the latter stressing the need for students to be “dynamic, flexible and self-regulating in uncertain task environments.”

At a time when the government is leaning heavily towards apprenticeships as the up and coming star in the FE arena – and the UK’s best answer to the skills shortage – Short believes we should be looking at offering more blended solutions, such as honours degrees that incorporate more vocational elements while offering students more general, adaptable, non-organisation-specific skills that they can take anywhere. “There’s a big difference between learning about something and learning to be something. But organisations come from the angle of their own culture, whereas as through traditional university courses we can integrate theory and real-world application in a way that enables students to be adaptable and flexible – able to take their learning into any context,” she says.

Short has been using McGraw-Hill’s Practice Operations simulation software for a number of years and describes herself as an evangelist for the use of technology and gamification to help students gain (almost) real-world experience of skills. Indeed, she has flipped learning and practice – going straight in with the simulation and integrating theory as students progress. This is a better reflection of the type of life-long learning opportunities/ imperatives that they will encounter during their working lives and capitalises on what she calls the “human



drive to work things out.” It’s a perfect uncertain task environment as championed by Haynie.

But what is Practice Operations? In short, it’s a virtual environment in which students play the Supply and Distribution manager of a clothing manufacturing company, making strategic decisions and operating their growing business to make a profit. Students are guided through progressively difficult goal-driven activities with inbuilt tutorials and required reading. Through her use of Practice Operations, Short has blurred the (sometimes artificial) line between learning and assessment. If the aim is to equip students to be adaptable, flexible and resilient, she believes that the assessment has to reflect that. As such, Short uses the game not only as a tool for mastery learning, but also for formative and summative assessment. Students receive ongoing feedback during the 6 modules and receive additional support when needed during lectures and weekly labs. While some students may struggle at first, she encourages persistence and manages frustration by helping students to develop a growth mindset. There is no grade distinction on the course – everyone can achieve 100% with determination and effort, she says.

And what do the students think? They tend to see it as challenging, but also refreshing – a welcome change from pure book learning. In fact, some don’t see it as ‘learning’ in the traditional sense, viewing it instead as a break from study. But it is more than that, whether the students are aware of it or not. With Practice Operations the powers of gamification are also at play. As Jane McGonigal, author of *Reality is Broken: Why Games Make Us Better and How They Can Change the World* puts it, “In a good computer or video game you’re always playing on the very edge of your skill level, always on the brink of falling off. When you do fall off, you feel the urge to climb back on. That’s because there is virtually nothing as engaging as this state of working at the very limits of your ability.”

While educational technology may not be a panacea for all Higher Education’s challenges, Short’s experience with Practice Operations is a great example of the type of change that we can achieve relatively simply to help university education remain relevant for the 21st century and beyond.



1. Technologies to Tame Toxicity
2. Rae, D. (2010). ‘Universities and enterprise education: responding to the challenges of the new era.’ *Journal of Small Business and Enterprise Development*, Vol. 17 No.4, pp. 591-60.
3. Haynie, J.M., Shepherd, D., Mosakowski, E. and Earley, P.C. (2010). A situated metacognitive model of the entrepreneurial mindset. *Journal of Business Venturing*, 25(2), pp.217-229

Practice Operations

Available within Connect®, Practice Operations is an interactive game-based simulation that puts the student in the role of an operations decision-maker for a clothing manufacturing company. This simulation allows students to practice using problem solving and critical thinking skills as they apply their knowledge to a real-world scenario. This learning resource provides a lively, interactive experience that focuses on student learning through trial and error within holistic game play, where students see how the elements of operations and production come together.

- Hands-on practice as an operations manager in a manufacturing scenario
- Analysis and evaluation of quality considerations in the production process
- Presents customer satisfaction and financial results as key success metrics
- Reporting features that make it easy for instructors to assess player performance and decision-making

Available with:

Stevenson, *Operations Management*, 13e

Jacobs, *Operations and Supply Chain Management* 15e

Schroeder, *Operations Management in the Supply Chain, Decisions and Cases*, 7e

Jacobs, *Operations and Supply Chain Management: The Core*, 5e

Swink, *Managing Operations Across the Supply Chain*, 4e

Cachon, *Operations Management*, 2e