

Why gamification has the potential to improve learner engagement and success - study

Gamification or the application of game elements such as points, badges, leader boards and levels in online learning activities can motivate students to be more engaged with their work and ultimately help them to be successful in their studies. This is according to Dr Samantha Adams, a lecturer in the Department of Industrial Psychology at Stellenbosch University (SU).



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Highlighting the potential of educational gaming for supporting and enhancing authentic learning experiences, Adams says the aim of her research was to design an educational gamification platform to increase student engagement in learning activities.

"The findings of my study suggest that game elements combined with thoughtfully designed learning activities can encourage and facilitate student engagement in that they participate in and complete the tasks set out."

Adams adds that when students are engaged, there's a better chance of them being successful.

Dimensions of engagement

Her study looked at the different dimensions of engagement that would contribute to engagement created through the participation in educational activities. These dimensions include students' behavioural engagement (do they attend class and engage with activities on the University's learning management system), emotional engagement (do students value what they are doing; is the course work a valuable exercise) and cognitive engagement (do students think about what they are learning; do they project into the future how they will use the information that they're gaining in the classroom).

As part of her study, Adams took elements of games such as points, badges, leader boards, levels and competition to design a gamified platform on SU's learning management system SUNLearn. Two Industrial Psychology modules and the associated online learning activities provided the content of this gamified platform.

Adams also conducted focus group interviews with students to find out more about their views and experiences of completing assignments on the gamified platform. She also used a questionnaire to evaluate and measure their behavioural, emotional and cognitive engagement at the start and the end of the semester.



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Gaming platform

Adams says the online tasks students were used to doing, were built into the gaming platform as levels or challenges that they needed to complete in order to move to the next level. All of this was aligned with the chapters or themes they were covering in class.

"It was still the same work but structured in a more engaging way. Students were incentivised when they completed a task.

"Points, badges, leader boards, levels and competition were used to get students more engaged with the course work and motivated to complete assignments and to collaborate more with each other through group work."

According to Adams, the most effective application of game levels resulted when they created structure in the layout of the gamified platform and facilitated a linear progression through the content. Focused goals at each level encouraged engagement with the content at each level.



Dr Samantha Adams, a lecturer in the Department of Industrial Psychology at Stellenbosch University

Photo credit: Stefan Els

Adams says the online content and activities on the gamified platform provided students with an opportunity to do additional practice of the work they were already covering in class and to improve on their learning.

Emotional influence

“My study showed that educational gamification influences students’ emotional, behavioural and cognitive engagement through the perceived motivational or rewarding influences of the game elements, relevance of the activities and enjoyment of the experience.

“When these factors are absent or cause frustration or anxiety, they are likely to have a negative influence on both emotional and behavioural engagement.”

Adams says if students perceived the activities as helpful, relevant or meaningful for their own learning, they were more likely to continuously participate and progress to the next level once the goal was achieved.

“The findings suggested that students were more motivated or likely to put effort into a task if its relevance to their studies was clear. Moreover, if the use of the learning material provides an opportunity for the student to apply the content, it may lead to more meaningful interaction with the content.”

Adams mentions that students who enjoyed the subject and the game described their experience of the gaming platform as “creative”, “fun”, “appealing” and “interesting”. Their engagement also increased dramatically.



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“These positive reactions speak to the motivational affordance and drive created by the structure (levels), activities (quests or challenges), incentives (points or grades) and competitive elements (leader boards). These game elements also evoked excitement, created anticipation for what was coming next and influenced positive behaviours such as continued participation in the activities.”

Adams cautioned that the level of engagement was lower among students who didn't enjoy the subject and that the gamification of the content did little to improve engagement.

"If they didn't like the subject, if they didn't like the content then there was nothing that the gamification of their learning activities could do to improve their engagement."

Design principles

Adams also developed design principles that could guide other lecturers in different fields who would want to use game elements as part of their teaching. These include, among others, providing focused goals that establish and convey the purpose of the learning activities; providing challenging tasks that convey meaning and relevance; providing rapid feedback regarding progress; creating opportunities for social interaction through competition or collaboration; and creating an environment that inspires curiosity and novelty and allows for creative thinking and authentic problem solving.

Adams says these principles should be considered when applying gamification and if applied in the correct way, could get students more engaged.

She adds that in addition to focusing on the learning outcomes they want to achieve and how gamification can contribute to this, lecturers should also identify and consider the needs of students and their expectations of a specific module.



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"In the design and implementation of gamified technologies, it is important to consider things like the context of students, the size of the group, programme structure and whether a module is compulsory or not."

Adams says the gamified platform that she developed shouldn't be seen as a one-size-fits all. "The findings of my study are not generalizable, but rather transferable."

She emphasises that gamification is just one tool that can be used for student engagement and should primarily be for learning and not entertainment.

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