

Guide to ESD in practice

Student engagement through gamification for experiential learning in the formal curriculum

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Michael Drummond, Liverpool John Moores University
Sue Cronshaw, Liverpool John Moores University

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1. Intended outcomes

1. Allow students to engage in more experiential forms of learning
2. Encourage competence-based learning
3. Support anticipatory thinking and integrated problem-solving competency
4. Provide staff with the resources to engage students with challenging topics
5. Encourage teamwork among students

2. Participants

Students: in teams of five they must work together to apply theory learnt in lectures to a sustainability-focused simulation which provides weekly progress reports and movement towards real-world business goals. The challenge for the students is to work as a team, discuss approaches and make decisions unanimously. The discussion ensures everyone has a voice and participates equally.

Staff: academic staff must be familiar with the software and be available to support students through the process, especially at the early stages of the game when students may not be as comfortable with the platform. Staff must be fully trained and feel competent with the game mechanics to avoid digital fear. Feeling competent in their own understanding and ability to instruct others about the platform is important for the initial briefing and ongoing interaction with the game. It is important to ensure that the educational content on the gaming platform is in synergy with the module content delivered to ensure optimal engagement with the materials.

Gaming platform: the company supplying the game should ideally be involved in the initial stages to provide technical support and game knowledge for the staff and students. Having technical expertise should alleviate any concerns from staff and should also provide the students with a robust account of how to engage with the game and get the most out of it. An in-house non-digital option is also appropriate if the tutor is not familiar with digital gamification platforms.

3. Activity/project

Gamification allows theoretical models to be put into practice. They provide participants with a unique experience in which team working, analytical thinking and insight, and decision-making skills are trained and tested each week, enabling student-led and experiential learning.

3.1.1 Digital gamification

At the start of the module students are given an initial task, for example to undertake an internal and external analysis of their company and wider market environment and decide

which of the 17 Sustainable Development Goals (SDGs) they plan to align their business strategy with. Students can choose to invest and implement a range of SDG-aligned practices. These can involve reduction of carbon footprint, changing manufacturing processes or fair work practices.

The students use the simulation to become the manager of their own company and are tasked with improving performance, notably profit. However, this must be balanced by being sustainable and undergoing activities based on some of the SDGs. Students invest in several SDG-related practices, such as selecting a service provider based on their carbon footprint, launching a new internal policy to tackle gender pay gaps or moving to more sustainable manufacturing processes.

Teams are given points based on their activity success and the profit they generate. Students are expected to work in teams to delegate roles based on the hierarchy of the organisation ie CEO, CFO and HR Manager. In their roles, in each round they are responsible for reacting to news and altering the course of their company in a sustainable, yet profitable way.

To explore companies that offer gamification software for education, Edumundo offers a wide suite of subject areas within business (see Useful Resources). For the outlined tabletop example, if you prefer to do this online, then Possible World (see Useful Resources) offers software specific to education around SDGs.

3.1.2 Non-digital gamification

If you are interested in using gamification in the classroom but are unfamiliar with the digital offerings or are limited in resources, then an alternative is to develop your own game for the classroom.

Chat GPT is an excellent tool to help design a game for your classroom based on your learning requirements and resources available. For example, generate the following prompt on Chat GPT:

“Create a tabletop game for university students learning about the SDGs that will take 90 minutes. The following learning outcomes must be met; enhanced teamwork skills, understanding of SDGs and critical reflection on SDGs. The only resources available are a deck of SDG playing cards, flipchart paper and pens.”

You will then receive a designed workshop that provides guided objectives, instructions and a timetable for when activities should be completed all within the resources and timescales permitted. This is often a good option if you are looking to address a specific element of a subject area and have limited resources.

4. Assessment or evaluation

The support and guidance in the classroom for using gamification is imperative to its success. Each decision made across the 12-week module will impact the success or failure of the situation.

While the team with the most points at the end of the semester will be deemed the most successful, the learning journey all students undergo can be evaluated. Research suggests that having scored outcomes from gamification as a means for grades can be counter-productive for learning. Therefore, gamification is good when it is used to develop and apply new learning as opposed to being for an assignment.

With this in mind, one option could be for students to be tasked with developing a sustainable strategy for a company based on the learning that they have obtained from the simulation. This could be written or presented as a group. Another option for assessment could be to develop a reflective report on their experience of both teamworking and their attitudes towards sustainability.

For assessing as a group, it is good to consider how students have gained knowledge on the SDGs and reflect on the impact each had within the strategy, the dynamics of decision-making and how they overcome any barriers.

Regarding an individual assessment of reflection, it is good to assess if students had a view on sustainability and SDGs prior to the exercise and if this changed post-experience. In addition, it is good for students to highlight their own behaviours and challenges they may have had and how this had an impact. It is also worthwhile using this reflection for students to consider their conduct in future studies. For example, did their contribution have a positive impact on group progress and could this be an experience they can take into other work in their studies? This allows students to not only reflect on their SDG learning, but also their self-learning on how their actions may have a positive impact on their future approaches to assignments and classwork.

Outside of assessment, it is often good to provide a weekly interactive quiz using a tool such as Kahoot! to encourage the students to apply and solidify their learning of the week's content. This way, students can start to breakdown their learning as opposed to feeling overwhelmed if applied learning is down to an end point assessment.

5. Useful resources

1. [Edmodo](#) – business simulations for education
2. [Chat GPT](#) – develop an in-house game tailored to the desired learning outcomes and resources available
3. [Brett Kuehner: That Guy with the Puzzles](#) – online materials to inform the design of educational escape rooms for the classroom
4. [Simventure](#) – business simulations for education
5. [Kahoot!](#) – interactive quizzes
6. [Possible World](#) – SDG game

6. Example of practice

Gamification has been used across all three levels of study with the business school at LJMU. The intention was to increase student engagement and motivation to learn, allowing students to see the implications and results of their decision-making.

The students were tasked with being the management function of their own multinational company. They had to improve company performance in terms of generating profit but had to balance this with initiatives aligned to three or four of the 17 Sustainable Development Goals (SDGs). On a weekly basis, teams were awarded points weighted on the success of these initiatives as well as their ability to generate profitable business.

6.1.1 Learning points

Our Business School recognises the need for a commitment to responsible management education but finding a pedagogical approach that engages students was a challenge. It has been highlighted in the literature that sustainability in education should avoid a formal teaching style and aim for a more transformative learning approach. We therefore adopted game-based learning within a range of modules across the faculty.

Using this approach has seen a rise in student attendance, engagement and motivation. It is unknown if this is due to the novelty of the gaming mechanic, the 'competitive' element, as groups competing against each other on a leaderboard, or the knowledge that missing class/es could significantly impact their success in the game and therefore grade in the module. It has been noted, from a survey of 100 students who participated last year, that gamification is unpopular as a form of assessment, due to the number of variables at play. It could be argued therefore that gamification is best used as a mechanism to apply existing learning of a topic and not as a definitive use for grading.

Gamification can be used to provide an experiential element of learning but is not limited to sustainability, it can be used to teach a wide variety of business scenarios/subject areas.



Contact us

All enquiries:

Email: communications@advance-he.ac.uk

Website: www.advance-he.ac.uk

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