GAMIFICATION IN HIGHER EDUCATION: THE PAST, THE PRESENT, AND THE FUTURE

Abstract

Although the term 'gamification' existed since 2002, its usage in the educational context is a neologism. Through the years, education has remained a conservative enterprise, mainly relying on legacy systems to impart knowledge in a depersonalised atmosphere. This POV examines the positive effects of gamification on learning, as well as the significance of gamification on the learning process. We also discuss the effects of technology on the gamification of education and forecast future trends based on current developments.

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Introduction

Gamification is the introduction of game-like elements into non-game contexts — such as a chore or a learning task — to enhance motivation and encourage participation. When used effectively, gamification can be a powerful driver for behavioural change.[1] A British computer programmer, Nick Pelling, in 2002, coined the term 'gamification.' However, the usage started gaining traction only after 2008 in several non-gaming contexts.[2]

In 2010, visionary game designer Jesse Schell imagined a future with all aspects of routine life gamified. He envisioned life as a kind of 'gamepocalypse,' where all chores, right from brushing one's teeth to commuting to work to exercise, earned points and motivated people to evolve through an immersive quest for betterment. He was not far from the truth.

Gamification, today, is widely adopted by many organisations to simplify their onboarding processes, or by marketing professionals to incentivise customers. Enterprise applications, productivity tools, and virtual to-do lists commonly feature game elements that turn routine tasks into a fun, immersive task, thus retaining the users' focus. Education is one area that easily lends itself to gamification to enhance the learning experience.

Gamifying education: The traditional way

Technically, 'gamification' of education only means applying game dynamics to existing teaching systems — for instance, turning homework into a quest of sorts or awarding badges for incremental progression. Gamification, in this sense, is different from game-based learning. However, there is considerable overlap, and caregivers and educators are now exploring the possibility of taking games and gamified resources to the classroom to drive more engagement, participation, and retention. Traditionally, board games have always familiarised children and adults with educational concepts in a fun way, including popular examples such as:

- Scrabble for vocabulary and spelling
- Monopoly for math and business basics
- Chess for creative thinking and problem-solving

Studies conducted on the effects of these games on cognitive abilities and brain development have been encouraging. Students who routinely play numerical board games perform much better on math tasks, while those who play chess may score an average of 10 points higher on reading tests than students who do not play the game.[6][8]

How gamification in learning works?

Research suggests that applying game dynamics to education fosters interest in learning and helps curb dropout rates. Games owe their universal appeal to five factors:

- They are interactive.
- Participation is voluntary.
- They feature incremental progression with due awards and recognition.
- They transport the users to a different reality, inducing a 'flow' state.
- They afford the freedom to fail and retry without consequences.

The Smithsonian Science Education Center lists five benefits of gamified education:[3]

- **Physical development:** Physical activity fostered through interactive games is at least as effective as normal physical activity.
- **Cognitive development:** Gamification stimulates brain activity, thereby supporting cognitive development.
- **Improved engagement and productivity:** Gamification induces a state of 'flow,' keeping the learners invested in the learning atmosphere.

- **Enhanced accessibility to learning:** There are several studies to prove that gamification is an effective teaching tool, even in cases of autism and learning disabilities.
- **Not limited to the classroom:** Gamification extends to activities outside the classroom. Its effects are visible in several non-academic areas, such as team-building, leadership skills, and creative problem-solving.

Gamification dynamics

Gamification in education is not a new concept. For generations, creative educators have introduced game-design elements into the learning environment to overcome monotony, foster an element of fun, and stimulate young minds. As discussed before, there are two aspects to gamifying education.

Structural gamification

Structural gamification in learning implies using game principles to facilitate learning. This concept uses 'reward systems' such as badges, leadership boards, competition, and teamwork and has always been popular with educators. Some examples of structural gamification in the classroom are inter-class quizzes, reward systems such as 'stars' for good performance or model behaviour, and the 'house' system, which allows members to earn points and work as a team towards a common goal.

Content gamification

Gamifying learning content remains an extremely effective but largely unexplored area, especially in higher education. Content gamification may include innovative techniques such as teaching history through role-play or exploring scientific concepts through stories or DIY kits. Primary school educators sometimes use the play-way or experiential method of teaching. But higher education, through most of the world, completely relies on legacy systems. This may be because education, at its heart, is a conservative enterprise.

Gamification as a pedagogical tool

An extension of content gamification is using games as a pedagogical tool. There is a lot of potential in this area, especially with the advent of e-learning platforms and the rise of edutech. Games cater to the innate human need for entertainment, competition, and achievement, and online ones can easily turn a monotonous task into an immersive affair. Let us look at these facts and figures:[4]

- The market value of gamification in 2020 was $9.1 billion.

- By 2024, gamification in the education industry could garner about $24 million in revenue globally.

- Gamified content is becoming a popular feature in e-learning applications, with a projected CAGR of 30.1% between 2020 and 2025.

- A survey conducted on university students with mixed demographics showed that 67% of students were more motivated to enrol in a gamified course compared with a traditional course.

- Research suggests that microlearning creates 50% more engagement in learners, and combined with gamification, the effect is substantially higher.

- About 58% of generation Z play games online, and 28% use the internet to learn new things.

Considering the popularity of gamified content, the global reach of the internet, and the easy availability of smart devices among the younger generation, it is safe to conclude that gamification can potentially drive tangible changes in education.*

Gamified learning in practice

Gamification has been deployed successfully through gamified schools, courses, activities, and study apps in different parts of the world.

Gamified schools

In 2007, a group of game designers in New York City founded the Institute of Play (IoP), which aimed to transform education through gaming. The IoP's alternative teaching methodology informs the models of two fully gamified schools, Quest to Learn and CICS Chicago Quest. These schools offer a full spectrum of gamified courses and classes and cater successfully to a mixed demographic, including special needs learners.

Gamified courses

Delft University of Technology, Netherlands, offers two gamified courses — an undergraduate course in computer organisation and a master's course in cloud computing. The courses are immensely popular among students, and instructors report enhanced engagement levels. In a similar experiment, the Deloitte Leadership Academy (DLA) launched a fully gamified training programme for its employees and clients. It extensively uses onboarding, badges, and leaderboards to sustain learner interest. The Academy reported 37% increase in weekly usage statistics since 2008, when it integrated gamified content into its programme.

eLearning platforms

eLearning platforms such as Archy Learning and Khan Academy use gamified content to personalise learning across all age groups. Elucidat, a digital learning and training platform, makes extensive use of interactive gamified content for product training and educating employees at scale. Brainly, a peer-to-peer collaborative learning platform, owes its commercial success largely to gamification. Studies show that gamification has resulted in 13% more completed answers per student, while 82% of students experienced enhanced motivational levels as an upshot of gamified content. [7]

Educational games

Multiplayer sandbox games such as Minecraft and Roblox now have educational versions that enable classroom collaboration and teach essential skills. These games owe their popularity to the freedom to explore, self-express, and modify the game environment.

Predicting future trends

In the past two decades, we have transitioned into a digital world where microlearning, shorter attention spans, and instant gratification have become the norm. We also have multiple inventions that can simplify teaching and learning. Based on available data, we can forecast a few future trends:[5]

- Gamification will shift from an emerging edutech trend to mainstream usage.

- Gamified content will personalise the learning experience, leading to greater engagement and better learning outcomes.

- Technologies such as artificial intelligence (AI), augmented reality (AR), and virtual reality (VR) have already forayed into physical and virtual classrooms. Their usage will be more widespread in the coming years, creating a more sophisticated learning environment.

- Gamification in learning can potentially revolutionise a few key processes, such as

  - Automate teaching

  - Automate and enable continuous assessment

  - Provide real-time feedback

  - Support personalised learning

  - Support soft-skills development

- For years, educators have tried to foster a more inclusive atmosphere in the classroom. eLearning, self-paced learning, and the introduction of game-design principles will allow education to transcend demographic barriers and create more democratic learning spaces.

Conclusion

The gamification of learning approach encourages the infusion of game-design principles into education, as well as the use of gamified content and resources to foster greater engagement and motivation in learning environments. If used effectively, gamified content can go a long way in ensuring personalised and quality education for all. Technologies such as VR and AR, combined with e-learning tools, can drive sustainable changes in the learning process and make education more accessible in the long run.

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