IMPACT OF DIGITAL LEARNING IN EDUCATION SECTOR : A PANDEMIC PERSPECTIVE

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APPLICATION OF GAMIFICATION AND SIMULATIONS IN TEACHING AND LEARNING TO CREATE LEARNING INTEREST

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Abstract

Research shows that using games in teaching can help increase student participation, foster social and emotional learning, and motivate students to take risks.One study of the popular multiple-choice quiz game Kahoot found that it improved students' attitudes toward learning and boosted their academic scores. In addition, studies have found that virtual games can improve focus and attention for students. But games aren't substitutes for other forms of learning. Like any educational tool, they need to be well-planned and integrated only when they're relevant to the learning objectives.Even if teachers aren't using a fully developed game in their class, they can use a process known as gamification, or weaving components of games such as points, leaderboards, and badges into lessons to boost students' motivation. Because students get excited about the competition from earning badges or embarking on a quest, they tend to take more risks—and, in turn, learn from their mistakes. To increase the likelihood of all students participating, teachers can scaffold the difficulty levels of a game, calibrated to the current ability of the student. For students with special needs in particular, games can be beneficial because they disrupt traditional learning approaches and introduce opportunities for them to succeed where they have often struggled.Though students can play games alone, most education games encourage players to collaborate effectively in teams—a building block for creating strong relationships and skills like cooperation that will be valuable as they progress through school and life, studies show.

Introduction

Educators have taken note. Whether it's as small as finding a game for a few students to play or as large as asking all students in a state to come together and create games, it is no secret that games are a powerful way to motivate and facilitate learning.When it comes to games in education, there are two overall forms it can take: Games designed for entertainment being used in an educational setting and Educators adopting features of game design to enhance learning. It is important to acknowledge the first form. There is an abundance of overlap between playing a game and learning a concept. Consider, for example, the persistence required to beat a video game level or the instant feedback that comes with being unsuccessful.

Even genres of games that adults frequently dismiss, like fast-paced action video games or match-three puzzle mobile games, are shown to have educational benefits. In the education world, rote skill-and-drill games are sometimes criticized on focusing on the wrong part of learning, but they often still employ characteristics such as rewards, goals, and narrative, which can produce demonstrative gains in learning.

Technology in Education

Educational technology (commonly abbreviated as edutech, or edtech) is the combined use of computer hardware, software, and educational theory and practice to facilitate learning. When referred to with its abbreviation, edtech, it often refers to the industry of companies that create educational technology. In addition to the practical educational experience, educational technology is based on theoretical knowledge from various disciplines such as communication, education, psychology, sociology, artificial intelligence, and computer science. It encompasses

several domains including learning theory, computer-based training, online learning, and m-learning where mobile technologies are used.

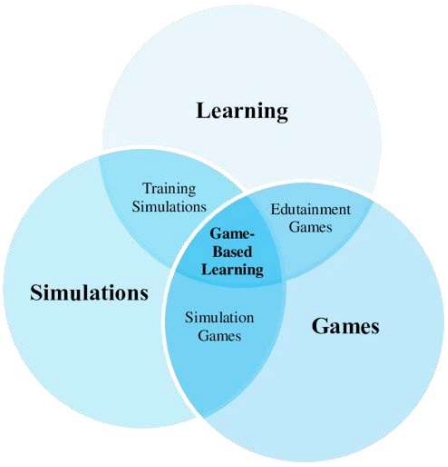
The Association for Educational Communications and Technology (AECT) has defined educational technology as "the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources". It denotes instructional technology as "the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning". As such, educational technology refers to all valid and reliable applied education sciences, such as equipment, as well as processes and procedures that are derived from scientific research, and in a given context may refer to theoretical, algorithmic or heuristic processes: it does not necessarily imply physical technology. Educational technology is the process of integrating technology into education in a positive manner that promotes a more diverse learning environment and a way for students to learn how to use technology as well as their common assignments.

Modes of Edutech

Accordingly, there are several discrete aspects to describing the intellectual and technical development of educational technology:

- Educational technology as the theory and practice of educational approaches to learning.
- Educational technology as technological tools and media, for instance massive online courses, that assist in the communication of knowledge, and its development and exchange. This is usually what people are referring to when they use the term "edtech".
- Educational technology for learning management systems (LMS), such as tools for student and curriculum management, and education management information systems (EMIS).
- Educational technology as back-office management, such as training management systems for logistics and budget management, and Learning Record Store (LRS) for learning data storage and analysis.
- Educational technology itself as an educational subject; such courses may be called "computer studies" or "information and communications technology (ICT)".

Gamification in Education



When educators talk about gamification, they are generally referring to the second form listed above. Gamification in education means that educators apply game design elements to an educational setting. The goal is usually to make learning more engaging.Breaking the concept of a "game" down into constituent game design elements is tricky, considering how vast the differences are among, say, chess, The Sims, and tag. There is in fact a range of elements that games might have, with different players being attracted to different elements. Researcher Dr. Nick Yee proposed one way to model the elements of what motivates gamers:

- Action (e.g., objectives)
- Social (e.g., competition)
- Mastery (e.g., scoring)
- Achievement (e.g., awards)
- Immersion (e.g., roleplaying)
- Creativity (e.g., customization)

When educators adopt features like the ones listed into a lesson, even if the result isn't quite a game, the lesson has been gamified. Some features are commonly tried, such as scoring and badges, but educators should also be mindful of less-structured features like decorating a classroom to match a lesson's setting or tasking students with unusual projects. Imagine students not wanting to leave their circle of education. When implemented well, a gamified lesson keeps learning objectives the same but makes the learning process more fun. Gamification is a tool that can build motivation and interest, in effect reducing student-driven issues in the teaching process.

There is not a one-size-fits-all approach to gamifying learning. If one tries to make next lesson more fun, she/he can consider what games and game features are best suited for unique situation.

Types of Edugames

Type	Explanation
1. Create classroom avatars	If many students play games that let the player create characters, teacher could have students create alter-egos that they can personalize and build upon. They can "unlock" clothes and modifications by completing class tasks or develop different skill sets such as "engineer" or "historian" that you can turn into custom projects.
2. Award badges	This can range from handing out simple printed badges after completing an assignment to having yearlong online leaderboards. When deciding what sorts of badges to award students, be sure to think about all of the students. Focus on rewarding healthy learning habits, such as staying focused or persisting through failure, instead of simply rewarding good grades.
3. Turn learning into class	Give students agency and motivation by turning learning objectives into quests. These can be solo quests (e.g., "Speak to the music teacher and

quests	collect three facts about Italian music") or class-wide quests (e.g., "Read 100 books"). Teacher can give students options for which quests to go on to not only differentiate learning but also offer them more control over their learning. Teacher could even create a class-wide quest board that encourages collaboration.
4. Connect classic games to school subjects	Certainly plenty of teachers have turned chapter reviews into quiz game shows. But teacher can work with any games, have access to. Consider modifying a property-acquisition game like so that the properties are historical landmarks. Or have students play a word game but reward certain categories of vocabulary words.

Simulations

Educational simulation is a teaching method that tests participants' knowledge and skill levels by placing them in scenarios where they must actively solve problems. The instructor defines the parameters to create a safe environment for hands-on learning experiences.When participating in a scenario, students must quickly evaluate the situation, decide on the best course of action, and perform the correct procedural steps. Educators can then assess whether the students understand the material and are translating their learned knowledge into skills.Simulation is useful not only for students—it can also be a way for patients to practice new skills while healthcare providers measure their progress.

Benefits of Simulations

Turn Knowledge into Practice

Simulation-based learning allows students to apply abstract concepts to active hands-on practice. For instance, nursing students can read about how to perform a procedure, but hands-on practice will help them feel much more comfortable.

Gather Measurable Data on Students and Patients

Another benefit of simulation in healthcare education is the ability to gather measurable data on students and patients. In simulation-based learning, the instructor defines the parameters of the scenario, and based on these parameters, can gather data on the progress of students and patients.

Safety for Practitioners and Patients

Simulation learning allows students and patients to experience an analog of a real-life situation while keeping themselves and others safe. Students typically practice with a mock patient, such as a manikin or a scripted actor.

Develops Self-Confidence

Simulated training helps teachers and students in various ways but it mainly helps them in developing their self-confidence and building their self-esteem.

Links Theory With Practice

This method of teaching also links theoretical knowledge with practical knowledge to ensure that the learned material is not forgotten.

Critical Analysis

This method of teaching also allows students and teachers to study critical problems in teaching and learning and encourages them to analyze the same.

Develops Social Skills

This method helps students and teachers to develop social skills such as social etiquette and manners. Students can also receive feedback to modify their behavior whenever needed.

Self-Monitoring

In simulated training, there is also the presence of self-monitoring which reinforces the student and teacher to elicit the desired behavior.

Types of Simulation Method of Teaching

Live Simulation: Live simulation involves actual people and equipment who interact in a real-world setting. Just as in the real world, the simulation runs in real-time. Learning value in live simulation depends on the sophistication of the simulated equipment.

Virtual Simulation: Virtual simulation includes simulated people and equipment in a computer-simulated setting. It runs in simulated time which allows learners to practice specific activities.

Immersive Simulation: In an immersive simulation, several learning objectives are addressed at once and real people interact with simulated people in a simulated environment to develop particular skills.

System Simulation: System simulation helps one to understand system relationships and strategy development. In this type of teaching, simulated people use simulated equipment in a simulated environment.

Drawbacks of Edugames and Simulations

Impracticable

In this method, role-playing takes place in an artificial atmosphere which can be impractical.

Impact on Seriousness of Learning

Simulation can be regarded as a sort of virtual gaming and this can reduce and impact the seriousness of learning negatively.

Lack of Emphasis

This method mainly focuses on social behavior due to which not much emphasis is laid on the content or the teaching skills.

Requires Supervision

This method requires the supervision of a professional and not all of them may be devoted to their duties. Sometimes, they may not be available either.

False Perspective

In this method, real-life situations are portrayed in a simple manner, and in reality, they may be entirely different and more complex.

Conclusion

The game-based learning method is comparable to the traditional learning method in general and in short-term gains, while the traditional lecture still seems to be more effective to improve students' short and long-term knowledge retention.Simulations and games have great potential to improve science learning in K-12 and undergraduate science classrooms. They can individualize learning to match the pace, interests, and capabilities of each particular student and contextualize learning in engaging virtual environments. Because schools serve all students, increased use of simulations and games in science classrooms could potentially improve access to high-quality learning experiences for diverse urban, suburban, and rural students.Conclusion: Schools offer unique opportunities to embed a game or simulation in a supportive learning environment, to improve equity of access to high-quality learning activities, to individualize learning, and to increase the use of games for science learning.

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