

Didactic Games and Gamification in Education

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Abstract

This paper undertakes educational games and gamification, their features, importance, and integration into the educational process. Besides outlining features, benefits, and difficulties, it highlights the difference between gaming, gamification, and game-based learning. The article contends that game-based learning and gamification elements such as reward, completion, and cooperation develop students' positive attitudes toward the curriculum and boost their learning motivation.

Keywords:

Didactic games, gamification, Apps.

Introduction

The multiplicity of educational technologies in education heightens the importance of gamification in teaching. It transfers attractive features, interactions, rewards, and appreciation embedded in the computer games to classroom teaching. This transference gives lessons a new dimension and motivates students to learn.[1] indicates that a game is derived from play(ing), and as it goes – he or she is a player. A game is anything that people use to play using a hand. A video game is an electronic game that is played by showing moving images appearing on a screen.

In education, a video-games is conventionally defined, according to [2], as “electronic games displaying actions on the screen. Such games enable a game player to control the actions in such a way known as the interactive relationship. This development and shift towards integrating didactic games with electronic technology attracted educators' attention, especially after the rapid spread of computers” (p. 144). Likewise, [3] defines it as “a type of software designed to increase learning motivation by adding games to learning tasks” (p. 8). The researcher establishes didactic games as software designed to assist students in performing learning tasks to increase learning effectiveness and boost learning motivation.

Objectives of Didactic Games:

There are several goals of didactic games (also called educational games). These objectives are listed below [4].

- helping students to acquire and maintain learning.
- Developing students' cognitive and mental aspects, including the ability to analyze, structure and innovate.
- Developing students' social and emotional aspects through cooperation between groups of players.
- Developing creative thinking among students.

Features of Micro-learning

[3] mentioned some of the characteristics of didactic games:

- Practice the content or problem-solving skills in an entertaining and engaging environment.
- player-specific roles.
- Challenge students to complete educational tasks and win.

Benefits of Didactic Games:

[3] indicates that one of the main benefits of educational games is adding fun to the time allocated to the topic to increase motivation.

Difficulties of Didactic Games:

There are some difficulties and challenges in integrating didactic games into teaching programs. Although using educational games is desirable and encourages behavior, some obstacles prevent the full use of educational games in education, the most important of which are mentioned below [3].

- According to the viewpoint of some educational institutions and some teachers, it is challenging to combine education and play.
- Inaccurate defining between the real roles in the real world and the student's roles in educational games.
- lack of learning versus enjoyment of playing.
- Difficulties related to the methods of applying games in the classroom.

Gamification

The British programmer Nick Bolling first coined the term gamification. It has been derived from the English word game. It is generally centered on using the characteristics of games in other fields such as education, economics, marketing, and others [5]. [6] defined Gamification as “a set of activities and processes aimed at solving a problem by using and applying the characteristics of games that distinguish it” (p. 29).

Gaming and game-based learning

As mentioned above, there are many terms related to gaming and learning. The most important terms are gaming and game-based learning. The following table shows the differences between the three types and essential features.

Table 1: Comparison between Gaming and Gamification [5]

Compared by	Gamification	Game-based Learning	Gaming
Definition	Incorporating gaming elements into the educational process	Use of games in learning	A directed activity that children do for fun and entertainment
Objectives	Behavior change, problem-solving, and motivation	Acquiring concepts and knowledge related to the curriculum	Fun and entertainment
Scope	Inside and outside school	In class or school	anywhere the students are around
Example	Scoring system	crossword puzzles to improve learning skills	playing in the school yard

Significance of Gamification

[Gamification in Teaching is important. It can be used to achieve some objectives, such as the following [5]:

- Developing verbal and non-verbal communication skills.

- Reducing the psychological pressures arising from educational practices or socialization.

- It is considered an innate tendency through which learners get pleasure and amusement.

- It facilitates learning complex operations.

- It encourages self-learning.

Incorporating Gamification in the curriculum

There are many attractions in educational games and using them contributes to individuals' engagement in the required work. Despite the essential attraction elements, gamification is based on psychology and theories more than technology. Therefore, the maximum benefit of gamification is by integrating its components into the educational process [5].

Components of Gamification

Educational games include several elements that could be advantageous in the educational process. Such components generally develop students' positive attitudes toward the curriculum and increase motivation for learning. The most important of these components are the following [6, 7]:

Rewards: aids obtained by the player by achieving specific goals.

Medals: Words/certificates of appreciation for completing certain stages in a game.

Levels: The points the player gets while finishing a game.

Ranking: with other players.

Integration: Students get involved in the game disregarding their surroundings.

Challenge: The players need to learn many skills and improve their skills to enable challenge.

Competition: Players compete with each other or with a virtual opponent.

Controlling: The player needs control in order to control the game.

Exploration: There are many opportunities to explore within the games.

Adventure: Experimenting the unknown.

Cooperation: Cooperating with other players or playgroups.

Imagination: have imaginative experiences.

Imagination: have imaginative experiences.

Care: playing needs attention to items within the game.

Relaxation: Games are stress-free and relaxing.

Control: It is one of the elements that attract players in games in general.

Suffering: Winning and loss and compensation in a game.

Steps of Gamification

There are many ways to achieve learning, including the following [7]:

- Adding points to assignments and homework.
- Determining badges and awarding them to the outstanding students after meeting specific criteria.
- Creating an ordinal list of outstanding students.
- Setting levels to repeat tasks or perform more complex tasks.
- Linking earned badges to enter higher levels.
- Using gamification software through a personal computer or mobile device.

Gamification Benefits in Teaching

Educators believe that there are many benefits of integrating gamification in education. The following points make gamification successful in the classroom [7].

- Giving students complete freedom to own their learning.
- Motivating students to continue self-learning.
- Allowing learning using virtual characters.
- Expanding the margin of freedom to make mistakes and try again without any negative repercussions.
- Maximizing opportunities to increase fun and joy in the classroom.
- Learning by using different teaching aids.
- Linking education to real-life and practical application.
- Providing an appropriate and unlimited range of tasks for students.
- Inspiring students to discover their intrinsic motivation towards learning.

Conclusion:

In short, the importance of educational games and gamification in learning and teaching is evident owing to their impact on learners' motivation, reducing monotony and presenting the learning materials more effectively and entertainingly. This may involve students in the materials presented to them and thus positively increase their achievement. Such games can be used as a motivating factor for the students. The properties games incorporate, and gamification can be used to make learning more attractive and exciting for the students.

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