

Edu-Escape Rooms

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Escape Rooms are cooperative games in which players must find clues, solve puzzles, and perform a variety of tasks within a limited time. The goal is usually to escape or leave a room, place, or environment. When the Escape Rooms have a pedagogical purpose, they are usually called Edu-Escape Rooms and can be related to gamification and Game-Based Learning. The potential for student engagement and motivation is one of the main advantages of Edu-Escape Rooms.

Keywords: active methodologies ; gamification ; game-based learning ; educational games ; escape room ; breakout

The European Higher Education Area advocates the implementation of active learning education methodologies complementary to traditional ones in order to face the new socio-educational context ^[1]. Active methodologies are one of the most interesting approaches to developing cooperative learning and student involvement in the classroom ^[2]. Everything related to games occupies a prominent place within these methodologies. Game is meaningful, spontaneous, and motivating ^{[3][4]}. In this regard, Piaget and Vygotsky ^{[5][6]} highlight the role of game in cognitive development, as it allows the incorporation of strategies, norms, and values in personal development.

Among the advantages offered by the games, it is worth highlighting their important didactic potential, which ranges from adapting to different learning rhythms, allowing mistakes, receiving instant feedback, and developing creativity to increasing the motivation and socialization of the students. Likewise, games enhance the student's commitment and participation in tasks as well as in the acquisition of skills ^{[7][8][9]}. Among the drawbacks of the educative use of the games is the risk of potential excessive competitiveness and inadequate time management; this, along with other particular aspects of each game, should be taken into account ^[10].

From an educational perspective, there are three important concepts linked to games: gamification, Game-Based Learning, and serious games. Although they are all related, they have different characteristics.

Gamification is the most known. It is often used to designate any activity in which playing and education or training are related; however, this concept is not precise. Gamification consists in the use of elements and mechanics of playing in non-playful contexts ^{[11][12]}. It is often implemented with help of online platforms, such as Classcraft or Classdojo ^{[13][14]}. Nowadays, gamification has become frequent inside educational research ^[15] and business training ^{[16][17]}. Very often this implementation consists in using some narrative and some system for rewards, usually with experience, levels, or gold; for example, Classcraft ^[14] lets students personalize characters and real-life powers. These powers are privileges gained by a student's scholarly efforts; these efforts are shown through tasks or quests to achieve within a plot (defeat a final boss or persuade her to make peace with the peasants, or any other idea similar to the fantasy adventures of games like, for example, World of Warcraft, a massively multiplayer online role-playing game (MMORPG); Dungeons & Dragons, a pen and paper role-playing game (RPG); or Skyrim, a computer role-playing game (CRPG)). To win, they have to complete some academic task. This is the main difference. They are not playing indeed. After they do the task, they receive rewards (experience points), and with enough experience points they level up and obtain powers.

Serious games are those games designed with a formative purpose rather than a playful one. This term appeared in 1970 thanks to Clark C. Abt, an American researcher. He refers to serious games as an approach or simulation that starts from a real situation that develops as a game with an educational intention.

Game-Based Learning refers to complete games that are designed with playful intent and are used in teaching ^{[18][19]}. Game-Based Learning creates a fun, motivating, and interactive virtual learning environment, using gaming technologies ^[20]. It is important to understand differences between gamification and Game-Based Learning. Above it is said that gamification ^[14] works like an "almost-game". There are several game elements, like story, rewards (experience points, levels, gold, etc.), characters/avatars, and characters' class, but there is not really a game. It is like going to play to Warcraft, Skyrim, Catan, Cluedo, or Dungeons & Dragons (or any other game, these are only examples of very well-known games) and doing everything before playing and after playing but, indeed, not actually playing. In Game-Based Learning ^[19] you play, because play activity is important, in these cases, for learning.

Within the wide range of Game-Based Learning, we can consider serious games, and also Escape Rooms, as a cooperative activity based in solving puzzles to progress in the plot during a limited amount of time.

The objectives of this paper cover the following:

- Define and understand Escape Rooms, including their origins and influences.
- Identify the advantages, areas of action, and associated problems throughout the implementation of Escape Rooms.
- Identify key issues with Escape Room design and the differences between conventional Escape Rooms and Edu-Escape Rooms.

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