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CONTENTS

USING GAMIFICATION IN EDUCATION[*]

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Abstract

The term *gamification* is relatively new. A decade ago, this almost did not exist, and now it is implemented not only in the education, but in business sector, sport events, politics, medicine and other fields. Gamification is using gaming methods in non-gaming situations. This means applying a gaming way of thinking for solving problems, or achieving a certain goal. Using this concept in the educational world motivates students to study and to perform their tasks in a pleasant way. Using gamification in the educational process is growing at an impressive rate. In this paper we will present the basic information on how you can use gamification in the teaching process, as well as an overview of the positive and negative aspects of using gamification in education.
Keywords: ICT, education, gamification

Introduction

Gamification is application of gaming methods in a non-gaming environment. It is a special way for participants to react in different situations to solve a problem or challenge. For gamification to be successful, the game must have clear rules, be attractive and interesting, fair and transparent. The goal is to get a competitive learning spirit. To say that a game is interesting, it must contain a challenge, a reward, and progress. This means that the player is required to achieve some result in order to proceed. For each successfully solved challenge, the player will receive an appropriate reward. Gamification is not the same as playing regular games. Playing a regular or video game is only for fun. The gamification should make the solution interestingly, but there should also be a set of goals that will improve the work and fulfill the assignments.

The purpose of this paper is to identify gamification as an important factor to motivate and increase student engagement in performing their tasks in and out of the classroom. At the moment, gamification is rarely used as a tool for engaging and motivating students. The leaders of the educational process give rewards for the activities of the students, and these are motivated to continue performing their activities at a high level. This is the basis for all corporations to build applications and programs for gamification. While there are many successful examples of gamification that have cleverly inserted gaming mechanisms, such as points, badges, and leader tables, to provide real-time feedback and increased engagement, the question remains - how to make day-to-day tasks essential motivating.

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[*] Specialized paper

Using gamification in education

In the gamification exploration, one example is often taken as the basis for explaining gamification, and that is the game of the company Starbucks. Starbucks's game is a great example of transforming a traditional loyalty program into a fun way to retain its customers. The game started in 2010 and worked in such a way that customers with each purchase, received stars that could later be exchanged for a free drink or discount. The user is initially registered and thus receives beginner (green) status. With a certain number of stars collected, the user gets a higher status and thus receives additional benefits. The game had three levels and the players who passed the third level received valuable rewards for their loyalty. Unlocking additional benefits is the moment of gamification.

Microsoft is also on the list of companies that have successfully implemented gamification. In the tech industry, the product testing phase is an important part of its final appearance, but it is often a phase where testing employees get bored and do not provide quality information. Knowing that quality customer feedback and bug identification are key metrics to a successful testing phase, Microsoft found a way to increase these interactions by creating a program that compares leading teams, and gives them credit for the company's charities. Thus, in the first examination, participants with gamification improved feedback by 16 times more than ordinary participants.

Previous examples are examples outside the educational environment. But with the development of gamification, it also found its place in the classroom. The best example of this is the famous game Minecraft - Education Edition. Although the use of video games in teaching has been noted before, one of the best and most current examples of game-based learning is Minecraft: Education Edition. This game teaches students how to code through one of the most popular game formats in the world. It is enough to ask the parents which game their children love the most and you will get not only the mentioned title, but also the game mechanics that come with it.

Another example is the Google application - Read Along. The app uses Google's voice technology to encourage children to read and follow the narrator in the stories. The application has excellent ratings and is used all over the world. The only drawback at the moment is that it only works on the Android platform.

Kahoot is an online platform where quizzes, questionnaires and similar content can be created. This way, students use their mobile phones for productivity and learning content previously set by the teacher. Kahoot is one of the most interactive examples of gamification that motivates students in and out of the classroom.

As can be seen, there are various examples where gamification has a significant impact on better student engagement. Although these examples are becoming more and more common and used in the corporate world, the application of gamification in education still has a lot of research and implementation details to get it right. Gamification in education has the potential to bring significant benefits, but it should be warned that it is a tool that should be used with great care, especially for the unique variables of each educational environment.

Principles of gamification in the classroom

Gamification refers to the use of a set of principles and elements to increase motivation, engagement, and performance in a classroom. The following basic principles of gamification have been identified as the basis of design for educational environment:

- Challenge
- Social connection
- Competitiveness
- Achievement
- Fun factor

The challenge is to provide opportunities learning and development (Cugelman, 2018). In the context of education systems, a reasonable challenge can be created to foster learning, problem solving and creativity. Students should see challenges as a way to improve themselves and their work, and therefore be motivated by the opportunity to progress. The degree of challenge will need to be properly determined because a high level of challenge can cause anxiety or frustration, and a low level of challenge can create boredom or apathy (Csikszentmihalyi, 1975). Hence, the level of challenge will need to be adjusted to suit each individual's skill level.

Social connection or interaction has been studied in the context of playing games and has been identified as a key factor contributing to the normal flow of responsibilities (Sweetser and Wyeth, 2015). Social connectivity offers opportunities to collaborate on a task, which improves on three key dimensions: focused concentration, time distortion, and enjoyment. Through this principle, cooperation has been shown to increase concentration and fun (Daggubati, 2016).

Competition refers to "a competition in which two or more parties strive for superiority or victory" (Liu, Li, and Santhanam, 2016). Motivation is improved in competitions by using internal or external prizes. Competitions allow students to compare their performance or behavior with others, which in turn can increase motivation, engagement and learning (Maslow, 1945).

Achievement is a psychological need of the human being to strengthen his self-confidence (Maslow, 1945). The motivation for success increases the effort and commitment to achieve the goal (McClelland, 1987). Students are motivated by important goals that give them a sense of accomplishment or success. They are also motivated by awards or recognitions for positive results.

Fun is all about creating interest, curiosity and enjoying a task. Fun is associated with increased inner motivation and engagement. In addition, a fun and enjoyable experience can also increase students' desire for work (Agarwal and Karahanna, 2000)

Elements of gamification

In our research and review of materials on this topic we identified the following elements of gamification design as important: Points, Badges and Ranking tables.

Points, badges and rankings are the three basic elements of any gamification design (Nah et al., 2015). A points system is a scoring chart that shows progress or performance. Points are awarded when a student completes a specific school or homework assignment. Different points are awarded for the variety of work done. Points can be inserted into tables and charts, where the progress is easily monitored and students can reach a higher level where there are more difficult tasks and more points.

When achieving certain goals and tasks, badges are awarded to indicate a certain level of achievement. Badges can be linked to points, in a way that you get a corresponding badge for a certain number of points.

The ranking table shows a list of the best students according to the achieved goals in different areas. The charts can record students' points and achievements over a longer period of time. They keep statistics when, who and for what got points.

Most often, when the teacher gains experience working with these elements, in a fun and interactive way he knows how to combine these elements together on a large board that stands in the classroom and each student can see their progress, but also the progress of their fellow students as competitors for the prize.

Conclusion

In this paper, we review the use of gamification and identify its implementation in education. Although we have presented number of concepts of a gamification system, most educators do not use gamification, and if they do, it is usually just points and badges. Because the use of gamification in the classroom is relatively new, implementing it should be done with great care. Gamification can improve internal or external motivation, but it has to find the right way to motivate students. Intrinsic motivation is "to do something because it is interesting or enjoyable" (Ryan and Deci, 2000). External motivation refers to doing something out of an interest in achieving other goals outside the classroom.

Gamification requires creativity. Students should master the teaching material in an interesting, fun and engaging way. As students collect points, level up, and compete with each other, the teacher collects data, monitors progress, and adjusts rules and rewards. Students become eager to participate in the activities they need to do to improve their place on the board and get a better reward. In this way, students make school and learning a game worth playing.

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