Gamification as a Tool for Improving the Didactic Process

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Abstract. For a long time, game elements were used in economics. It has already been proven that the use of gamification in marketing is a regular and successful technique with a future to create a brand experience and involve not only customers but also stakeholders in the field of corporate social responsibility. However, gamification began to enter the educational environment, mainly due to the effort to motivate students as well as customers of companies. The aim of the paper is to focus on the concept of gamification only in the didactic educational context, to summarize the benefits and disadvantages of this attribute as a whole. The paper presents a summary and analysis of various secondary data of scientific as well as practical nature.

Introduction

The concept of gamification was first used in 2002, on the website of consultant Nick Pelling, who offered a playful hardware enhancement, i.e. the principle of using gaming elements in non-gaming environments. Gamification gives a name to a phenomenon that began to emerge in marketing practice long before the gaming industry was built as we know it today and before the term was widely used [1]. The positive effect of gamification in marketing is supported by many scientists and practitioners [2-6]. This can be explained by the fact that by using innovation and knowledge about users in a progressive form of marketing communication, companies are able to achieve a competitive advantage [7-11]. Nowadays the gamification is proving to be an innovative method for firms to engage stakeholders in Corporate Social Responsibility issues [12,13].

Between 2011 and 2013, the concept of gamification quickly came to the forefront of information technology trends due to its emplacement in the Gartner Hype Cycle. However, Gartner 2014 Hype Cycle refuted this assumption and shifted gamification down the curve to the Trough of Disillusionment - to hybrid clouds and augmented reality [14]. However, there are reasons why gamification can be considered as a trend in the future. The first is the ever-evolving gaming industry [15]. The second reason is the expansion of smartphones and wearable technology [16]. Related to this is another trend, namely Quantified Self [17], enthusiasm in collecting data about yourself thanks to smart devices. Gamification complements these areas perfectly. These facts logically provoke a wave of discussions about the degree of its usefulness in various areas of human action. And so more and more academics are beginning to implement it in didactic educational process.

Gamification in the Didactic Process

There are different definitions of gamification in different fields, but there is still no generally accepted one [18]. The most common definitions are: gamification is the use of game mechanisms in non-game applications, and gamification is the use of game elements in a non-game environment [19]. These game elements must specify some rules or structure to stimulate the participant's action [20]. In the field of the educational process, the definitions of gamification also differ. Gamification is the application of game mechanics in a non-game context in order to inspire students to participate and interact with other participants in activities [21]. Gamification can also be defined as an effort to change the style of thinking and the use of game rules in order to increase interest in problem solving.
and student involvement [22]. The aim of gamification is to incorporate fun and engage students in education while providing feedback that arouses greater interest, motivation and stimulation for students to learn [18].

The didactic form is defined as the organizational framework of teaching and learning, various ways of managing and organizing the educational didactic process. Gamification in this case is identical with this notion, because from the position of using game design it is considered internally systematic, i.e. composed of groups of interactive, interconnected and interdependent elements that form a complex whole [23]. When comparing the definition of the didactic form and gamification as a system, there is an intersection in the nature of the mentioned terms. Thus, it can be deduced that gamification is not in conflict with the didactic form, but due to the range of tools and direct elements it can be considered as an adaptable tool for the didactic form, able to respond and influence individual management methods and elements of the organizational framework of teaching. Gamification is, and should be, part of education, it is a powerful didactic tool because it has its foundations in motivation and in the love of learning [24].

With the advent of modern technologies, the way of teaching without the use of these technologies is beginning to seem uninteresting and often ineffective. Depending on how gamification is applied in education, it can significantly affect a student's zeal, engagement and motivation [25]. The presence of gamification in education is required [26,27]. Therefore, it is not surprising that many people are trying to find ways to improve the education system. According to Google Trends, in the last 5 years, the most frequently searched related queries with the term "gamification" were queries such as "gamification education" or "gamification in education". It is clear from this that the field of education is the area that calls for gamification and at the same time also the area that is very difficult to gamify, as it is an environment where not all game tools can be successfully applied [28].

The Gains and Losses of Gamification in the Didactic Process

Several authors promote a common view in understanding the benefits of gamification in the didactic process. This is based on the fact that players of the same games create their own communities, discuss, solve strategy and ultimately put a large amount of intellectual work into play. And when they go through one level, they automatically solve the next one, which is more challenging. Players enjoy achieving such progressive goals [29,30]. Proponents of gamification focus primarily on game mechanics, which are the basic building blocks of games [31]. The experience of games has become a challenge for the current teaching system [32]. The great benefit of games is that students have the opportunity to practice practical skills thanks to gamification. However, the purpose is not to directly connect the game with learning, but it is important that the student is able to transfer the learned knowledge to the real world thanks to the game [33]. Gamification demonstrably increases the involvement of students, especially in such topics that may not be of interest to them, reminds the participants, thanks to the specific design of the tasks, what they have learned so far, emphasizes their achievements and progress, motivates people to better performance and encourages mutual cooperation, sharing of knowledge and experience in the group [21].

There are several studies that have unequivocally confirmed the benefits of gamification in the didactic educational process. At the Ulster University, they used the gamification mechanism and made it compulsory for students of the technical field. The gamification mechanism in this case consisted of gaining points, immediate feedback, and challenges that students had to overcome. Study success rate increased from 82% to 95%. The improvement of study results was also demonstrated by repeating the study in the summer semester, when the rate of unsuccessful students decreased from 25% to less than 10%. The results therefore suggest that the application of gamification increases students' motivation as well as their knowledge. Gamification in this case helped weaker students to achieve better results. For students achieving good academic results even under normal circumstances, gamification did not have such an effect. An interesting result is that students achieved better grading across all subjects [34]. Further research confirming the benefits was based on the
principle of comparing the results of students using traditional methods with those who worked with the gamified form. The results were surprising, the group using gamification had, on average, up to 12% better attendance (97%) than traditional students (85%). The gamified group did more homework on average. The final grade from the subject was just as better as that of students of the traditional form. Likewise, when examining the activity on a theoretical or practical level, the gamified group showed better results [35]. Other research has confirmed that gamification has a positive response from students. The biggest improvements were in attendance, participation in activities and motivation [36-38].

Like within many other methods used to support teaching, there are some limitations and weaknesses in gamification as well. There are views against the gamification in education that see its disadvantage in that certain pre-programmed steps and expected solutions to problems are limited by authors’ expectations on their fulfilment. Students are not expected to have their own creative solution to the problem, but only one that is consistent with the author’s expectations. However, this can be avoided by individual support from the teacher outside the game environment as well, and by continuous development of the environment. Pre-programmed instruction is considered as another limit of gamification in education because it suppresses the student’s natural discovering. In reality, however, the student has a considerable degree of freedom. It reminds rather heuristic method of problem solving teaching, by means of which the student actively participates in searching, discovering knowledge to be learned. Students are encouraged to analyze and understand what a task solution is in order to be able to use the same procedure to solve problems of the same type. The disadvantage of the method may be its duration. Each student works individually and solves problem at their own pace [1].

The problem is that the impact of gamification on the quality of learning is still poorly studied. Gamification in education is a very broad and fragmented topic. Some studies have resulted in conflicting conclusions. The game used in teaching history thrilled students, but their knowledge deteriorated [39]. Research on the effectiveness of gamification application within younger pupils has shown that gamification did not optimize or harm their study results [40]. Other research has observed a positive effect of more demanding games on learning effectiveness - but it has only been shown by intensive gamblers (and supporting intensive gambling is controversial, especially in connection with children) [39].

Conclusion

Nowadays, at a time of digital technology boom, almost the entire didactic educational process can be gamified. Teachers have a variety of applications available that offer a variety of game elements. Although some experts oppose gamification, there are plenty of proponents and arguments to support gamification. Thanks to it, the didactic educational process with the aim of acquiring knowledge and skills can be faster, easier, more fun and more effective.

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