Possibilities of gamification in online learning at the University of Žilina

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Abstract

Research background: The current classical education system also used at the University of Žilina has certain gamification elements. However, it does not meet needs of most students, and is even very demotivating for a large proportion of students. Students perceive studying only as their duty, instead of perceiving it as something they enjoy and like to do. With the advent of modern technologies, the way of teaching without them is beginning to seem uninteresting and often ineffective.

Purpose of the article: The COVID-19 global pandemic and the necessary national measures taken to combat the spread of the virus can significantly disrupt the provision of education. According to Resolution on the future of European education in the context of Covid-19 now is the right time to rethink and modernize curricula and procedures and accelerate change, by promoting digitization and innovation through gamification as well. The purpose of the paper is detect the possibilities of gamification in online learning at the University of Žilina.

Methods: The survey was conducted to obtain the necessary primary data. It was statistically tested by one-way ANOVA, which represents the option of analysis of variance.

Findings & Value added: The aim of the paper is to find a statistically significantly different segment of students from the University of Žilina, who have greatly expressed interest in gamification in online learning in order to increase their motivation.

Keywords: gamification; online learning; University of Žilina

JEL Classification: I20; I23; O31

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1 Introduction

The concept of gamification was first used in 2002, on the web site 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 (Fiala, 2019). The positive effect of gamification in marketing is supported by many scientists and practitioners (Plesis, 2011; Kuo, 2013; Zadakova, 2018; Zéman and Bogdan (2019). 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 (Sroka et al., 2014; Palus, et al. 2014; Domańska, 2018; Lizbetinova et al., 2020, Arsawan, 2020; Sawaftah, 2020).

For a long time, game elements were used in marketing, at the end of the 20th century, gamification began to enter the educational environment, mainly due to the effort to motivate students like customers of companies. If students are really motivated to learn, they spend a lot more time on certain problems, devote more time and effort to solving them, feel better about their results and are likely to use the acquired knowledge in the future (Malone, 1980). From the point of view of motivation, Fiala (2019) according to Malone defines 5 basic characteristics of the optimal educational environment:
- The student can move freely in the environment.
- The student receives immediate feedback on their performance.
- The student can progress at his own pace.
- The student is not limited by the environment during discovering.
- The student is encouraged to discover the context.

Such an environment can be found in online games, which often contain highly motivating factors that affect the player's behavior and his ability to learn while playing (Reicher, 2018). As in games, where the player is challenged to perform more complex tasks by gradually increasing the difficulty, this principle can also be applied in learning, by gradually increasing the level of difficulty of the solved tasks (Szalmáné and Barna, 2020).

Gamification has become a widespread teaching method in the 21st century. According to Resolution on the future of European education in the context of Covid-19 now is the right time to rethink and modernize curricula and procedures and accelerate change, by promoting digitization and innovation through gamification as well.

2 Literature review

There are different definitions of gamification in different fields, but there is still no generally accepted one (Aldemir et al., 2018). 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. These game elements must specify some rules or structure to stimulate the participant's action (Bodnar et al., 2016). 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 (Israel, 2017). 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 (Çeker and Özdamlı, 2017).

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 (Aldemir et al., 2018).

The didactic form is defined as the organizational framework of teaching and learning, various ways of managing and organizing the educational 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 (Salen and Zimmerman, 2003). 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 the education; it is a powerful didactic tool because it has its foundations in motivation and in the love of learning.

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 (Sandusky, 2015). The presence of gamification in education is required (Tulloch, 2014; Ružić and Dumančić, 2015). 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 (Marczewski, 2015).

3 Methodology

The aim of the paper is to find a statistically significantly different segment of students from the University of Žilina, who have greatly expressed interest in gamification in online learning in order to increase their motivation. To fulfill the goal, a research was carried out, which was attended by 89 students from the University of Žilina. The sample of students was made by deliberate selection so that the answers obtained were sufficient to obtain information about possible differences between various segments of students. The compared segments were analyzed on the basis of gender, the degree of study of the respondents and the results of the studying.

The data were statistically tested by one-way ANOVA, which represents an extension of the two-sample t-test. In the case of comparing two groups (the factor has only two levels), the ANOVA leads to the same result as the t-test. The aim of the analysis of variance is to reveal whether the differences in the averages of individual groups found in the sample are statistically significant or can only be random (Tomšík, 2017). The whole process of statistical analysis of the one-way ANOVA method begins with the determination of the hypothesis of existence, resp. the absence of differences in the analyzed groups. For the purposes of this paper, the following hypotheses have been established.

- Student groups according to gender differ in attendance at lectures with elements of gamification.
- Student groups according to gender differ in attendance at seminars with elements of gamification.
- Student groups according to gender differ in their motivation to perform better in education through online learning with elements of gamification.

Other hypotheses were similarly established with the same factors. The difference was in the aspect of sample segmentation. We also examined the existence of possible differences between the groups according to the degree of study and the average results of the study so far.
4 Results and Discussion

The aim of the paper was to find a statistically significantly different segment of students from the University of Žilina, who have greatly expressed interest in gamification in online learning in order to increase their motivation. By statistical analysis using one-way ANOVA, we found that there was no statistically significant difference between the examined groups at the significance level of 0.05, even in any of the nine hypotheses. The results thus indicate that there are no discrepancies between the specified groups of students according to gender, degree of study, or average study results. However, in general, the data clearly show the positive attitudes of all students towards gamification in the online environment. Respondents mostly responded that it would improve their attendance at lectures, attention to seminars, and it would also motivate them to perform better in education. This confirmed the studies of several authors (Hung, 2017; Çeker and Özdaml, 2017; Maican et al., 2016), who promote a common view in understanding the benefits of gamification in the education 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. It is a greater challenge for players and they enjoy achieving such progressive goals (Squire, 2017). 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 (Oliveira et al., 2008).

Gamification in addition:
- increases the involvement of students, especially in such topics that may not be of interest to them,
- reminds participants, thanks to the specific design of the tasks, what they have learned so far, emphasizes their achievements and progress;
- motivates people to perform better;
- encourages mutual cooperation, sharing of knowledge and experience in a group (Israel, 2017).

Further research confirming the benefits was based on the principle of comparing the results of students using traditional methods with those who also worked in a gamified form. The results were surprising, the group using gamification had on average up to 12% better attendance (97%) compared to traditional students (85%). On average, the gamified group did more homework. Grade was also better in the gamified group. Likewise, when examining activity at a theoretical or practical level, the gamified group showed better results (Laskowski 2014). The authors Dichev and Dicheva (2017) confirmed that gamification has a positive response from students. The biggest improvements were attendance, participation in activities and motivation.

The results therefore suggest that the application of gamification increases students' motivation as well as their knowledge.

5 Conclusion

Studies that deal with the effectiveness of gamification evaluate its effect mostly positively in many respects, whether it is to improve motivation, attendance or student performance. This is also confirmed by our research. It is possible to perceive positively that our assumption that there will be a statistically significant group that would prefer gamification in teaching has not been confirmed, so we can say that it is applicable at a flat rate to all students within the university. Despite all the mentioned benefits based on secondary and primary data, it is necessary to deal with the assumption that even gamified education can
cause or strengthen dependence on games. Thus, gamification should not be confused with playing games for entertainment, where such addiction may occur. Gamification in education, on the other hand, could be an opportunity to bring addicted students to a different type of use of games, get rid of their primary addiction and bring them back to the real world.

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References


