

Gamification in the Focus of Innovative Education Methods

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Abstract: In the era of technological advancement, the modern approach in education have created the industry of e-learning. In connection to e-learning, a new phenomenon, gamification is also discussed. The current era requires creative individuals with quick decision-making skill and an ability to identify the correlations between information and different processes. Therefore, an increased focus is experienced by the education system that has to undergo significant changes in order to successfully develop these skills. Gamification or gaming is an increasingly used method in business and education as well. The essence of gamification is the use of game elements that might lack immediacy or relevance for users and incentivize them to achieve certain goals. The article deals with the role of gamification in education. Gamification is about using some of the elements of computer games to drive engagement and monitor progress in a less formal way. This new approach to learning is becoming more and more popular on international and domestic field as a tool to enhance the motivation of students in the education process.

Keywords: innovative method, gamification, generation Z, education

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1. Introduction

The increasing competition and changing requirements in education resulted in introduction of new teaching methods. The Internet generation of students cannot really break away from the world of games. It does not matter whether they are working, studying or having fun. They expect to see the transformation and establishment of game-based institutions, especially in the field of educational institutions. It is important to keep in mind that the generation socializing in digital culture is familiar with the toolkit of gamification that might determine their behavioural norms.

Gamification became popular around 2010, although the term itself has been in use since 2002. Gamification, serious game, edutainment (education and entertainment) are the concepts close in meaning; their English equivalent is also used by the Hungarian terminology, similarly to their Hungarian equivalents (Rab 2013). Gamification refers to applying game-like elements and games in a non-game environment to make the processes interesting, effective as well as achieve success. Gamification can be applied in various fields, including the education – the result can be a positive improvement (Frommann and Damsa 2016).

The introduction of game-like elements in business is not a novelty. It has been used in different areas of business e.g. many airline companies offer discount points to their passengers based on the miles flown with the company – passengers can achieve different grades by using the airline services and get discounts based on the grade they have achieved. Car manufacturers have also discovered the essence of gamification (Duřová et al. 2017). Business gamification is characterized by strong dominance in marketing, where the primary aim is to reach the customer and motivate them to buy products and use services, attracting new customers or increasing the activity of the existing clientele. The marketing focus eliminates the borders between the gamification project and the loyalty programme. The rapid development of information technology has widened the gap between the generations. This resulted in increased challenge for educational institutions and teachers as well. According of (Blřtáková and

Piwowar-Sulej 2019) it is worth emphasizing that gamification – just like any other solution in the area of HRM – has to be implemented with due caution. The game scenario has to be well thought-out, the technology must be adequately refined and the employees themselves cannot feel overloaded with excessive incentives.

The basic goal of the research is to map the relevance of the need to introduce alternative methods in education. Since the researched problem in Slovakia in the context of education, taking into account their benefits and possibilities, is not well analysed, we consider it crucial to address the issue in more detail.

2. The Importance of Games in the Education and the Life of the Individual

Game-based teaching has long been a part of education process; games serving educational purpose were introduced early. Gamification is using game-like elements and techniques, but the purpose is not the game itself, it is aimed at increasing interest and effectiveness of the student (Rigóczki 2016; Zichermann and Cunningham 2011). Gamification tools in education are used to raise awareness and interest. According to (Kenéz 2016), gamification is a tool to be applied in case of different subjects and courses with any number of students and technological condition applied. Gamification is a system-like application of the game that requires planning, even if we play only for an hour. According to (Werbach and Hunter 2012), the most important is to set the goals. The goals and the tools are functioning well if the players are provided experience and they feel motivated by the play.

The goals can focus on the lesson (higher participation ratio of the students, attention, students are engaged), homework and the continuity of the learning, which seems to be the most problematic aspect. It is a good idea to choose the goal and convert it to a measurable indicator (Kenéz 2016).

Gamification of the lesson and the pedagogical process does not mean that the activity is about enjoying the game. The student is involved in the education process by applying game-like elements and game mechanisms. Gamification tools include game mechanisms and game elements.

- The game is supported by the following game elements:
- Story (events and goals)
- Display
- Elements (phases, tasks and the related rewards e.g. scoring)
- Immediate and permanent feedback
- Missions to be completed (rewards also for partial achievements)
- Points, badges, rankings (performance indicators)
- Levels (progress, boundaries). (Rigóczki 2016)

The tools can function effectively if the mechanisms of the game are determined: the game is properly planned, it is voluntary, promising, easy to understand, transparent, motivating and the time limits are properly set. One of the most important element in gamification process of the education is a breakdown into elements. The game should be designed to provide a possibility to join it later and achieve the level of those already playing. Scoring can be restarted by topic and rewards earned by chapters. These all can be motivating factors. Gamification is increasing equal opportunities also for students with special needs, as we provide choice of processing methods. The fundamental question regarding the rewards and the feedback is how they are connected to extra-curricular rewards, how material and immaterial reward is important e.g. the result, the success and the verbal praise (Kenéz 2016).

3. The Impact of Gamification, Benefits and Doubts

Gamification has been used and tested in the education only for a few years, so only few studies have addressed the issue. Those who applied gamification made a conclusion regarding the extrinsic and intrinsic motivation of learning. The increase of motivation supported by gamification has increased the success and effectiveness of individual and group learning (Rab 2015). According to (Frommann 2012), the advantages of gamification can be summarized in three performance-enhancing factors: increasing

individual and group motivation, strengthening community cohesion and the result-oriented attitude based on playful processes.

Similarly to other methodological novelties, one of the difficulties faced when applying gamification is the resistance of experienced educators. It is supposed that teachers with lack of knowledge in the field of computer games find it difficult to understand the structure and mechanism of these games. Negative experience has also emerged regarding these games. The teacher may assess the extra work the introduction of the new method might bring, especially at the beginning of using the application. The resistance of teachers is not the only complicating factor when introducing gamification. According to (Szabó 2015) and the research based on effective use of technology in education, the students also find difficult to accept the introduction and the use of technology not only as an entertainment tool, but also as a part of the education process. Another argument among the opponents is the fact that the desire to learn is replaced by the desire to play. The consequence of this might be that the generation socializing on the Internet will be difficult to engage in any other way. (Huang and Soman 2013), in order to avoid misunderstandings and negative effect emphasize that not the result that needs to be gamified, but the process that leads to the result. The best results in gamification can be detected when the importance of obtained knowledge cannot be immediately perceived by the student, but continuous motivation and learning activity is required. Gamification can promote continuity throughout the learning process. There will be neither intensive nor learning avoiding periods; learning will become a continuous process (Barabasi 2018).

Gamification is an integration of game elements, experience and cultural roles in order to motivate the student behaviour. In cognitive terms, games can provide a complex system of rules that players have to discover through a process of experiment. Games help managing different tasks and keep students motivated while combating difficult tasks. An important technique during the game development process is to define specific challenges that perfectly fit the level of skills the players have and their level of difficulty increases as the skills of the player improve. Students are motivated by specific, moderately difficult and immediate goals (Fromann and Damsa 2016). The games played can exactly set these types of goals. If these techniques are applied in the education process, the attitude of students to learning will change. It provides students clear and accomplishable tasks and promising immediate rewards instead of unclear long-term benefits.

Emotional games evolve a wide spectrum of strong emotions from curiosity through frustration and up to joy (Lazzaro 2004) (Duřová et al. 2017). They allow to experience some positive emotions e.g. optimism or pride. These positive emotions can be sustained and students will benefit from during the periods experiencing negative emotions.

Gamification involves the promise of enhancing persistence in case of failure that is an essential part of the learning process. Gamification shortens the feedback cycle, offers students a low-risk opportunity to assess their own abilities and creates an environment in which effort and not only the perfect mastering of task is rewarded. It allows students to perceive failure as an opportunity instead of feeling helpless or being afraid of failure.

In social context, these games enable players to take on new identities and try new tasks in order to make decisions and act applying different perspectives (Lazzaro 2004). The players also take on roles that are less imaginary; they are discovering themselves from new perspectives in a secure game environment. The game can provide social recognition for school achievements that would otherwise remain invisible or even lead to feeling ridiculous among other students. Recognition may come from the teacher, but gamification allows students to give rewards to each other in form of feedback provided by the game.

A well-designed gamification system can help students to take on meaningful roles that initiate their learning. If creation of new identity is playful and rewarded, we can help students think differently about their potentials in school.

4. Methodology and Research Methods

In order to achieve the research objectives we applied primary data collection to obtain information about the researched issue. An anonymous questionnaire survey was conducted among the respondents in the winter semester of the academic year 2018/2019.

The questionnaire contained 25 questions, the vast majority of which were closed questions, but we used also open questions and Likert scale questions to assess the information in a detailed manner. The questions fall into the following groups:

1. questions to explore financial education tools;
2. questions related to the learning of financial skills;
3. question exploring educational methods;
4. questions focusing on the basic demographic characteristics of the sample.

In order to analyze the collected data we applied statistical methods, crosstab and distribution also as st. deviation and mode.

In winter semester of the academic year 2018/2019, a research was conducted addressing the full-time students of the Faculty of Economics at J. Selye University. The research partially aimed at examining the relevance of the need to introduce alternative methods in education. 570 full-time students were addressed to participate in the primary research conducted in form of a questionnaire survey. The students represented different study programmes provided by the faculty and different levels of university education (bachelor, master, post-graduate).

5. Empirical Analysis

We managed to collect 204 completed questionnaires, which represents a return of 35,79%. Based on partial results of our primary research, it can be assumed that the most commonly used method in teaching process is sharing theoretical knowledge and performing practical tasks at the board. The respondents summarized that they often meet written tests, written exams or use the Internet to deepen their knowledge in the studied field.

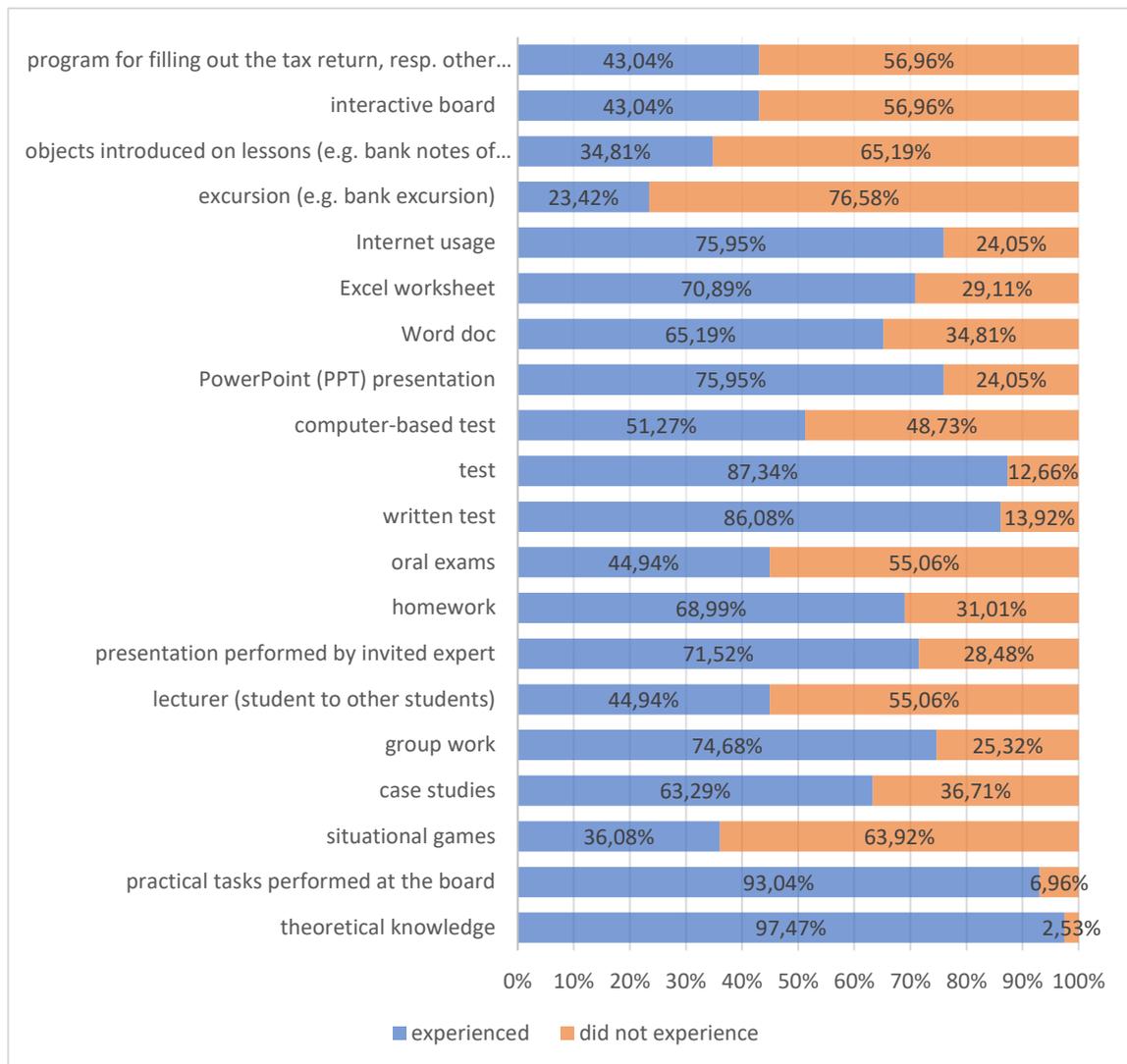


Figure 1. The methods students experienced or did not experience in the education process

In addition to expressing the student's opinion whether they have encountered the alternative methods listed or not, we were also interested in their opinion about the efficiency of these methods in order to identify the requirements of the students and adapt the teaching methods and techniques to their requirements.

Table 1. The results of the survey on the effectiveness of alternative methods applied in the education process (1= not effective at all, 5= absolutely effective).

Style	Average	Mode	St.deviation
excursion (e.g. bank excursion)	4,12	5	1,09
practical tasks performed at the board	4,02	4	0,95
presentation performed by invited expert	3,96	5	1,04
Internet usage	3,86	4	0,97
objects introduced on lessons (e.g. banknotes of other countries)	3,65	5	1,23
theoretical knowledge	3,64	3	0,97
test	3,58	4	0,98

PowerPoint (PPT) presentation	3,5	4	1,05
group work	3,5	4	1,07
written test	3,5	4	1,06
case studies	3,49	4	1,08
interactive board	3,46	3	1,2
Word doc	3,38	3	1,06
Excel Worksheet	3,23	3	1,15
computer-based tests	3,2	3	1,15
homework	3,1	3	1,12
situational games	3,08	3	1,26
oral exams	2,85	3	1,11
lecturer (student to other students)	2,67	3	1,16

Mode is a way of expressing important information about the population. This statistical term is a set of data values in the value that appears most often. In normal distribution the numerical value of the mode is the same as that of the mean and media, but it may be very different in highly skewed distribution. (Pacáková et. al. 2009)

The results of the questionnaire survey (Tab. 1) clearly point to the fact that students consider the practical approach to teaching combined with the use of the Internet the most effective technique. This fact clearly supports the implementation of simulation software in the teaching process required by the students. Based on standard deviation data from the interval $\langle 0.95; 1.05 \rangle$, (we determined an interval $\langle 0.95; 1.05 \rangle$ with respect to the characteristic values of the standard deviation), it is possible to state that respondents' opinions are consistent in assessing the effectiveness of the test, theoretical knowledge, the Internet usage, practical tasks performed at the board but also in the presentation performed by invited expert and PowerPoint presentations. Among these alternatives, the most practical, on average, are the practical tasks performed at the board, the presentation performed by invited expert and the Internet usage in the classroom. On the basis of the mode according to the respondents, the most effective method used in teaching is the presentation performed by invited expert, the use of the Internet and practical tasks performed at the board. The findings clearly show that students are encouraged to introduce alternative methods in teaching with intensive involvement of experts from practice and using the Internet. The other reason might be the competitive labour market environment in case of university graduates. Introduction of the simulation software is a key tool to prepare university graduates for the 21st century.

6. Conclusion

Gamified systems usually provide students more control over their results that is good for the individual and the institutions as well. Based on the results of our research the most preferred method was e-learning and the use of the Internet, which could be seen as a good ground for the future of gaming and that further research into the current situation of gaming implementation is needed. Today, the X, Y and Z generations are simultaneously present in the labor market, making it increasingly difficult for companies to find the right employee at the right place. Another problem is that if a company retrain from the Y and Z generations, it will invest time and money to properly carry out their job - but this generation will change jobs without thinking if they feel something is not being discussed. the responsibility is too great or too small. In such a situation, companies are trying to develop customized workplace loyalty for younger generations, one of the possible tools of which is gaming. With the application of various serious games in recent years, there have been many examples in the HR recruitment and selection field, clearly targeting the younger generation of employees. Gameplay is a method that affects the organization as a whole, supporting the achievement of organizational goals by

promoting employee satisfaction and motivation while using playful elements. (Kovács and Várallyai 2018)

Not only does gaming play a role in education and marketing, but it is increasingly used in some areas of human resources and organizational development. From creative recruitment through team building trainings to increasing workforce retention and loyalty. It also stimulates motivation, collaboration, and at the same time increases corporate performance.

The goal of the learning process is to acquire certain competencies and the teacher's duty is to support the student in achieving better results. The individual level of learning motivation determines how student can gain feedback and motivation. If we want to increase learning efficiency, we need to find a method and tool that has a positive value for the student (Szarka et. al. 2018). Employees face new challenges on the labour market nowadays. In order to find and retain a high-quality human potential, a company has to adjust to the needs and expectations of the potential and existing employees. The current labour market is dominated by two generations of the employees, Generation X and Generation Y (Blštáková and Piwovar-Sulej 2019). Gamification is not only a method, but a mindset with a focus on the student experience (Kenéz 2016). In our rapidly changing world, the teachers cannot survive using traditional methods if they want to succeed in the classroom. New directions are needed and new methodological tools. Since the representatives of generation today were born influenced by online environment, the education should remain open to using smart devices. Beside the methodology, introduction of gamification brought new perspectives in education. In our modern era, the whole society should be prepared for the Internet generation. This process has already started by the introduction of gamification in workplaces, business and education. The sustained interest in gaming techniques in theory and practice is determined by wide opportunities in the processes of research and solution of specific social and economic problems of the organisation. It results in increase of the student competitiveness, training and development.

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