How Education Should Become More Playful?

The Impact of Gamification on Teachers and Students

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Abstract

The concept of gamification appeared in the educational literature a decade ago. The changing world shows the process of teaching in gamification in two areas: one is content, and the other is accountability and evaluation. We cannot be left behind, and there is no time to think differently in pedagogy either. The Z generation research comparing traditional and gamified learning of the generation reports that gamification learning is more motivating, and students recall twice as much information or knowledge due to the use of visual elements as when using traditional learning methods (Alabbasi 2018). This study sheds light on why educators are reluctant to keep up with this accelerating world regarding gaming lessons.

Keywords: gamification; game-based learning; methodology; teaching attitude; Z generation

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The concept of gamification appeared in the educational literature a decade ago. However, even in the last two to three years, studies on the subject often begin with the fact that gamification is a new, little-known phenomenon (Balogh 2017, Borges et al. 2014, Pacsi - Szabó 2017). This study examines the underlying difficulties in proliferation and the positive and negative effects that gamification can have on learning.

When defining gamification, the first question already arises: many people also place game-based learning (GBL) in this category. Gamification can be defined as the use of elements and techniques specific to computer games in a non-gaming environment. The goal is to maintain and motivate the user's interest (Fromann and Damsa 2016, Rigóczki 2016). Marketing makes extensive use of gamification and explores its possibilities. For example, various point-collecting promotions are included in this category. While education is still trying to adapt the method, marketing is already distinguishing the second generation of gamification from the first one. The first generation system is called PBL, short for the initials of the basic structure mechanisms (points, badges, and leaderboards). As for its most characteristic feature, it is strongly based on the rival and competitive spirit that appears during the game. Meanwhile, the second generation of gamification seeks to reconcile individual and marketing goals, using the PBL system in a more sophis-

ticated way and often displaying virtual reality (Pacsi and Szabó 2017). It is also important to define the game-like appearance in a non-playful environment. For instance, in the lesson components highlighted from the games, visual aesthetic elements should appear in order to draw the students' (or other users') attention (Fromann and Damsa 2016).

During the teaching process, gamification can appear in two areas: the first is the play of the lesson, and the second is accountability and evaluation. The latter means taking over reward systems, feedback, and levels from games (Fromann and Damsa 2016). Kapp, Blair, and Mesh (2014) also mention these two directions, arguing that content play turns the curriculum entirely into a game by assigning a frame story to it. In contrast, structural gamification assigns game mechanisms to the curriculum. Conceptual diversity, contradiction, the blurring of gamification, and GBL are most relevant to the former, i.e., playing the course of the lesson. However, the difference is clear: GBL makes the game part of the learning process while gamification makes the process itself playful (Opris et al., 2021).

One of the main reasons for this may be that many authors argue that the presence of play in pedagogy is not a novelty in itself and that the playful nature of man is not an issue. However, long-used game elements do not necessarily fall into the category of gamification. In general, a good game creates tension as part of the rivalry, and an important feature is that we play to entertain ourselves. The game also plays an informative role, and it also conveys patterns of behavior and social rules. One of the functions of the game is to prepare for adult roles and tasks, so in ancient societies, children typically learned this way, and reform pedagogical methods also took over a lot from this idea. As opposed to this, during the upper secondary and high school years, play is increasingly disappearing from the line of teaching methods. Nevertheless, gamification can change this characteristic (Pacsi and Szabó 2017, Rigóczki 2016).

It is a must to note that, as Rigóczki (2016) highlights, lesson play does not mean that the whole lesson becomes a game. Instead, the educator involves the individual game elements and game mechanisms in the pedagogical process. In his opinion, the game mechanisms appearing in the pedagogical process:
- The game is for itself. We do it for the action itself, without any reward.
- The game is voluntary, and the condition is motivation.
- Game liberation: the outside world and anxiety are ruled out during gaming activity. This is what online games build on when, for example, they only use reward mechanisms.
- The game has a time frame.
- The game is transparent, the rules are clear, and do not change during the game; finally, the results are predictable.
- The game is a social space. Communities are also organized in connection with online games. Players can communicate with each other, and cooperation is often required to succeed.

Elements of the game process:
- The game has a story. The player's character moves towards his goal in some sequence of events.

- Game elements also appear at the visual level.
- Tasks are broken down into sections and elements. Scoring is required for completing each subtask.
- Feedback is immediate and permanent.
- Quests can be completed for separate points or devices.
- Scores, leaderboards, and badges display results.
- The game contains levels that aim not to make the score pointless but to have a qualitatively higher level after a certain amount.

Two components can be gamified during the teaching process. The first is the gamification of the course or the lesson. More and more software is available for this. These are, for example, Classcraft and MinecraftEdu in the edutainment category or the Smart Box developed in Hungary. The latter offers tasks broken down into lower grades, upper grades, and high schools from several subjects. Practice assignments can be searched by class, subject, and topic. Examining the practical tasks in Hungarian literature, digitized tests can be discovered. A notable research topic would be to examine how students in Generation Z rate that the display of tasks does not contain playful design elements, nor does their structure differ from the structure of a paper-based test. Furthermore, they usually do not contain other important elements of gamification, so for example, growth is not visualized during use, and we do not get extra points, for example, if we correct the wrong answer (Balogh 2017, Borges et al. 2014, Caponetto et al. 2014, Fromann and Damsa 2016).

Redmenta is also an online interface in Hungarian. It is a worksheet-making app that can make it easier for educators, but as we can see in Figure 1, the playful design does not feature it at all, not even as much as the Smart Box.

Reference: redmenta.com

Wiggins (2016) examined the incidence of GBL and gamification at the University of Arkansas. He also listed digital and traditional games, not limiting the process of gamification to online interpretation. Non-digital games in the research included card games, board games, and other non-electronic simulation games. One of the researcher's findings was that the sharp demarcation between gamification and GBL is hampered because additional game elements can also be used in the learning process when applying GBL. Only 43 percent of the interviewed instructors were aware of the concept of gamification whereas 57 percent of the interviewed instructors used scoring, storytelling, and giving feedback. However, these elements appeared at certain courses or with specific themes. The author argues that gaming is not a novelty. Similar to the edutainment software above, the question might arise if scattered occasions can truly be considered gamification because there is no game-like appearance and story flow.

Most research on students indicates that gamification increases their motivation and meets the needs of Generation Z more effectively. Generation Z includes children born after 1995 who already have more advanced digital competencies than previous generations. They typically have a large initial knowledge base in collaboration and digital content creation, and this knowledge can be developed

more easily than in the case of those born earlier (Khan and Vuopala 2019). The Z generation research comparing traditional and gamified learning reports that gamification learning is more motivating, and students recall, on average, twice as much information or knowledge due to the use of visual elements as when using traditional learning methods (Alabbasi 2018).

In addition to motivation, active participation and involvement appear to be positive; however, studies do not always justify better academic progress (Domingez et al. 2013, Opris et al. 2021). Measuring the exact effect of gamification is hampered by the fact that GBL often appears as gamification. Furthermore, the organization of learning is not the same in different cases. Hence, it is possible that students' poor performance does not depend on gamification per se but rather on its organization, such as proper leveling (Clark et al. al. 2006).

Teachers' motivations and attitudes were less studied than the impact on students. In his research, Alabbasi (2018) asked the opinions of 47 teachers. Those who have already used gamified methods have a positive experience. However, it turned out that teachers often have mixed feelings about gamification, which is viewed as a simple supplement or necessity solution, i.e., motivating students with problem behavior. Overall, in addition to the fundamentally positive attitude of teachers, a quarter of respondents also highlighted that negative effects may occur. For instance, students focus on collecting points and badges instead of actually gaining knowledge and understanding the curriculum. Opris et al. (2021) interviewed 81 students at Babes-Bolyai University in Cluj-Napoca. Half of the students thought there was no difference between gamification and GBL (game-based learning). However, they all found gamification very useful, mainly because it motivates and encourages students to participate actively.

On the other hand, the lack of methodological knowledge and the difficulty of reconciling gamification ideas with curriculum requirements were cited as disadvantages. As far as the negative effect is concerned from the students' point of view, their motivation can decrease during the process, and the emphasis can shift from internal motivation to external ones. More than half of the responding students believe that the tasks to be solved in the class can be easily gamified whereas the processing of new knowledge and the gamification of the entire educational process achieved much lower percentages.

In conclusion, the motivating role of the game and its long-known knowledge transfer function also appear during gamification and fit well with the learning characteristics of students. Gamification also includes visual elements and pro-competitive mechanisms that can better capture Generation Z's attention than the traditional (e.g., frontal and only explanatory) teaching process. At the same time, there are still many difficulties on the part of teachers. Although no research has shown that any group of teachers is explicitly opposed to gamification, it is sometimes seen only as an additional option to support the treatment of students with behavioral disorders.

The lack of methodological knowledge is paired with the lack of knowledge of concepts. Teachers do not necessarily know whether they are using gamification or GBL, or just occasionally integrating some game elements into the learning pro-

cess. The methodological shortcoming, for example, is that they do not know how to compile appropriate content gamification. It is also a problem to measure the impact of play on students as the effectiveness of learning can be hampered by, for example, inadequate levels or an over-emphasis on external motivation.

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