

## THE OPPORTUNITIES OF THE DIGITAL EDUCATION

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*Abstract: The digitalisation means not only challenge but a lot of opportunities too for the present education system. In this article we would like to present those innovative methods which can be easily integrated into the traditional educational environment and at the same time they strive for shape new pedagogical methods. Several international research deal with the positive aspects of digital game-based learning and trends of mobile technology-enhanced learning but also draw attention of restrictive factors, that need to know these in order to we can effectively apply these methods in our lessons.*

**Key words:** digitalisation, education, game-based learning, innovation, mobile technology-enhanced learning

### INTRODUCTION

Nowadays, the issues of creative use of the opportunities provided by digitalisation, the possibility of experiential teaching-learning provided by game pedagogy, and the application of innovative methods are becoming more and more important.

The intergenerational gap caused by the information revolution, the ever-expanding curriculum, and the changed educational needs make it necessary to develop and introduce new alternatives for both educational institutions and teachers. This phenomenon has been observed for decades, but lasting and effective solutions that would have left a real mark on the education system can only rarely and in isolation be discovered [7].

The so-called problem-based education - in which the focus of the learning process is problem solving. The learner does not have enough information - and not have the specific acquisition of knowledge [20].

The world around us and particularly within the digital world transforming is the process of understanding and recalling. The basic factors of learning are students' ability to read and understand, as well as task tolerance. Issues concerning attention, concentration and motivation come to the fore. As learning motivation has changed, education is also facing a new challenge, which at the same time still uses traditional methods. A new generation of pupils with – maybe - unusual learning needs adapted to the information age, pose a real challenge for the existing school system. Effective teaching methods are expected to be used, and as a result, new forms of learning and unusual teaching locations can also help to deepen knowledge [21].

### MATERIALS AND METHODS

A short literature overview on the topic is presented in this work. Without wishing to be exhaustive, we have tried to process the relevant and current results of digital teaching methods. The aim of the work was to gather materials about the methods that can be used during a pandemic situation, in addition to preparing a PhD dissertation.

### RESEARCH RESULTS

#### **Game-based learning and experience pedagogy as an alternative method**

Situations that are challenging for young people need to be created, as the experience is not just a positive emotional state, but a tool to help them experience unusual situations and then learn from them. Experience contributes to the development of an

individual's personality and mental abilities, increasing the effectiveness of teamwork. Experiential pedagogy helps by directing attention to self-knowledge, making us more open to new and real experiences. It emphasizes solidarity, cohesion and empathy, as well as shared successes, while at the same time having a positive impact on the development of communication skills and cooperation [12]. An important factor is that in a group learning environment there is also a good opportunity for differentiation, the effect of which can be enhanced by the educator creating a differentiated environment through teaching, discussions and moments of cooperation. The game provides an experiential environment for the development of forms of learning, which results in a high level of motivation for most students, ensures participation, action, and thus the context. The self-regulatory nature of the teacher and the activity play a key role in this [14].

Experiential pedagogy does not convey a positive set of values to us in a direct, frontal way, but with the freedom in which its effectiveness actually lies. The role of game pedagogy in the development of personality and community, the transfer of culture is also of special importance, as it provides an opportunity to pass on the accumulated values and thus to integrate them into society [4].

### **Digital games in education**

A number of edutainment applications emerged in the '80s and' 90s, but their effectiveness became less well known, primarily due to their commercial nature. After the turn of the millennium, the terms 'serious games' and 'digital game-based learning' (DGBL) have emerged as new definitions, which shed more light on the real purpose of these games, namely teaching and learning processes to increase efficiency [15].

More and more technological developments are emerging for digital games and applications, the use of which clearly represent an innovative approach to the learning process and emphasize the drive to increase the number of digital game-based tutorials. Digital game-based forms of education have a much more positive effect on learning outcomes than traditional teaching methods, which is why the authors emphasize the need to develop these methods [1]. Another positive aspect of digital games lies in their motivational power. Clear, specific goals - to be achieved - allow the individual, through continuous feedback, to perceive whether their performance is in line with them, thereby influencing performance growth and contributing to increased motivation [8].

The use of digital games is also very important for skills development, as it provides an opportunity to promote and practice the development of thinking operations, so that interactive games for educational purposes in public education can provide a suitable space for the development of cognitive skills [15]. Game-based learning also has a high learning value, even when taking into account specific skills, such as critical thinking, group communication, discussion and decision-making [16].

Gamification allows for active involvement, and play creates a natural medium for the child, and the joy of discovery makes it possible to shape learning into an inner need. In the process of traditional education, it becomes common to acquire information and at a pace that is primarily important to others, but with the introduction of new technology, it becomes available in its own rhythm and activity, and it can access information by initiating questions. Frequent interaction, feedback, competition all strengthens intrinsic motivation. One of the most important factors in integrating game pedagogy into the educational environment is to recognize that the acquisition of knowledge by intrinsic motivation becomes much more lasting, as one instinctively feels closer to the motivational elements provided by play, as one can discover unknown areas, experience excitement and experience life your own creativity and the flow experience [7].

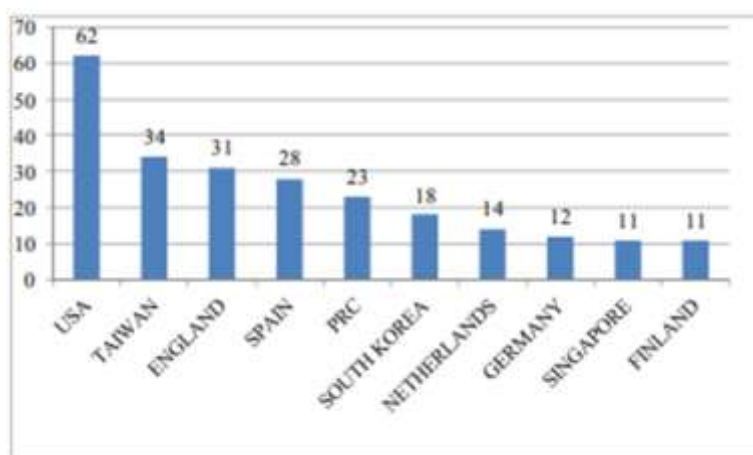
Constructive pedagogy also emphasizes this, according to which the child tries to interpret the world, to operate his inner images, at the same time comparing the processes

around him with his own experiences. You have the opportunity to do this if you can be active, if you can experiment or intervene in the processes, you can face the results and actively compare your own explanations with those of others. If he is provided with active participation, he is highly motivated, so the principle of context can be applied more easily [14].

Group games have a particularly positive effect on collaboration, and community experiences can help children with learning difficulties as they can perform better in this context. Furthermore, not only the acquisition of the content of the curriculum itself can be a goal in the teaching process, but also the development of skills that the game also requires in the process of play [23].

#### **Innovative methods in digital education**

Recent research also draws attention to the importance of various game-based mobile applications for educational purposes, which have also demonstrated the potential for promoting learning motivation. Over the past decade, many educators have integrated games to support games into their own activities, but little information is available on their results. Studies written between 2007 and 2016 (Figure 1) focus primarily on the development of reading skills, i.e. the use of mobile phones for educational purposes and offers opportunities for more effective methods. At the same time, problem-solving applications have greatly improved student performance and also facilitated the effectiveness of teamwork [5]. As a result, their effectiveness is not clear either, however, it has already been established that it proves to be promising in terms of learning outcomes and motivation [25].



**Figure 1. Top 10 countries integrating mobile learning into the gaming industry between 2007 and 2016 [25]**

On the graph, there are noticeable penalties for publications that have examined game-based learning supported by mobile technology by integrating it into educational activities. The authors of the study created the figure according to the nationality of the first authors of the publications, from which we can clearly see that many countries have already tried to integrate the possibilities provided by mobile phones into the educational process. The US, Taiwan and England are leaders in mobile technology applications [5].

With a novel approach, it calls for an important 2019 study that favors experiential learning methods, its application, and preparation for the appropriate enrollment of disadvantaged high school students in higher education. To motivate learning, a program has been developed that, within the framework of a summer program, ensures that during practical experience, various simulations are supplemented with learning lexical

knowledge, significantly increasing their chances and for further learning. The program sees the learning process as a holistic process, in which case it emphasizes the importance of applying it to our environment and learning through experience [9]. The positives of the simulation, in that one response provides feedback to the player in the process leading to the goal, different origins and player activity affect that's state [10].

#### **Reservations regarding digital games**

One of the limitations of digital games is that if the user focuses primarily on certain elements of the game, the activity itself will be less motivated, and as a result, the internal motivation will not be adequate, thus the external motivating forces will prove ineffective [13]. It can also be a problem if the goal you achieve seems too unattainable, as it can also lead to a loss of motivation, but it can also happen when someone joins a game as a new user and feels they can no longer catch up your teammates who have played the game before [2]. The fact that the game itself is not clearly related to a reward may also contribute to the decrease in motivation, ie the reward itself acts only as an incentive for users [3].

Hyrnsalmi, et al. [11], who examined 22 literatures on this topic, concluded that the ineffectiveness of gaming is primarily related to the implementation itself or to the design of the system itself, so if they are not properly developed, they prove less effective. It is considered important when designing new systems that users use elements they have encountered before.

Dominguez et al. [6] concluded that although digital games increase student motivation, the extent of this is not significant, and great efforts must be made to make this form of learning feasible and have maximum impact. In his research, he found that the gamified system itself was not motivating enough, and some of the students did not find it entertaining to compete with their peers. Aspects of cognitive impact were also examined, in which he felt he discovered that students in gamification did not perform better than those in traditional training. He found several flaws in the game rating system and highlighted that he found it problematic that studies on this topic focused primarily on emphasizing the positives.

Also, based on the results of a study exploring the literature, Toda, et al. [22] identified four negative effects, namely ineffectiveness, loss of performance, user misbehavior, and achieving reduced impact, the most frequently mentioned negative in the literature examined being loss of performance. Users found inappropriate behavior to be the second negative effect of gamification, i.e., in the context of learning, it did not have the effect it was originally intended to apply. It is important to highlight that faulty design or a complete lack of design was also the cause. This was followed by the third factor as a negative, the lack of the expected effect, in which case the students were not affected in either a negative or positive direction by the play played.

Finally, attention was drawn to the decrease in motivation, according to which the motivation of students decreases after a certain time, with which their performance also shows a decreasing trend in direct proportion. Based on all these results, it can be said that the negatives related to gamification occurred due to the selection of the inappropriate method or the lack of frameworks. Another important factor is that in incorporating the game, the focus was primarily on student motivation rather than precise planning.

Thus, when integrating digital gaming into education, it is important to make sure that the optimal workload is ideal, which ensures consistency of tasks and abilities, and that in addition to enjoying the game; the experience of success becomes available. Also, when limiting the achievable level of the goal, the primary consideration is not to be unreachable and thus not mean the end of the game for the user. It is also worthwhile to

design an ideal reward system, keeping in mind the positive feedback, but the reward should always be proportionate to the performance provided by the user [7].

## CONCLUSIONS

In the period before digitization, expertise was fundamentally determined by how deep and diverse the educator's knowledge was in the field. Another important component of expertise is how efficiently and effectively it can transfer this knowledge. Nowadays, it is becoming more and more important to use methods based on activating students instead of teacher-centered, frontal education [17].

The use of toys in schools also raises some issues. On the one hand, it is not easy to fit into the curriculum, and the time frame also limits the implementation of more complex games [23]. The results of a survey conducted by the National Institute of Public Education in 2005 show that more than 80 percent of the interviewed teachers have already tried one of the methods other than frontal education, but still prefer traditional frontal classroom work, as they greatly upset the usual classroom order and are considered time consuming [19]. Further research reveals that, for example, the use of infocommunication tools in the classroom causes anxiety and related rejection in teachers [18]. For them, the use of digital interfaces is primarily tied to entertainment, social relationships, or play [24] and play is often treated with caution.

However, based on the above, it would be an important task to combine old experiences with new methods, as unusual forms of learning can greatly contribute to the deepening of knowledge.

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