

## **Gamification of education: innovative forms of teaching and education in culture and art**

### **Gamificación de la educación: análisis de formas innovadoras de enseñanza y desarrollo del proceso educativo en el ámbito de la cultura y el arte**

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#### **Abstract**

The article is devoted to the analysis of the concept of "gamification of education". The study aimed to determine the features of gamification in education and analysis of innovative forms of teaching and development of the educational process in the field of

culture and art. Research methods: among the theoretical - analysis, synthesis and systematization and generalization of scientific and scientific-methodical literature to clarify the state of study of the research problem and specify the concepts on which the process is based; among the empirical - questionnaires of participants in the educational process in order to understand the place of the method of "gamification" in the educational process of higher education institutions. The results of the study highlight the features of the phenomenon of "gamification" and its possibilities in the organization of the educational process during the training of future professionals, in particular in the field of culture and art; there are three types of gamification that are used in education (light, deep and combined); the fundamental components of the method (elements, mechanisms, dynamics, game characters).

**Keywords:** educational gamification, educational process, game.

## Resumen

El artículo está dedicado al análisis del concepto de "gamificación de la educación". El objetivo del estudio fue determinar las características de la gamificación en la educación y el análisis de las formas innovadoras de la enseñanza y el desarrollo del proceso educativo en el ámbito de la cultura y el arte. Métodos de investigación: entre los teóricos - análisis, síntesis y sistematización y generalización de la literatura científica y científico-metódica para aclarar el estado de estudio del problema de investigación y especificar los conceptos en los que se basa el proceso; entre los empíricos - cuestionarios de los participantes en el proceso educativo con el fin de comprender el lugar del método de "gamificación" en el proceso educativo de las instituciones de educación superior. Los resultados del estudio ponen de manifiesto las características del fenómeno de la "gamificación" y sus posibilidades en la organización del proceso educativo durante la formación de los futuros profesionales, en particular en el ámbito de la cultura y el arte; se distinguen tres tipos de gamificación que se utilizan en la educación (ligera, profunda y combinada); se señalan los componentes fundamentales del método (elementos, mecanismos, dinámica, personajes del juego).

**Palabras-clave:** gamificación educativa, proceso educativo, juego.

## 1. Introduction

Modern political, economic, social, and cultural development requires a reorientation of existing realities, particularly in education. Education is a dynamic system, which is greatly influenced by all the changes taking place in society. Changes in the world community lead to the fact that the relevance of the issue of quality education increases significantly, the realities of the modern world require new approaches, the search for new, non-standard, more effective, compared to traditional, methods of organizing the educational process. A modern educator faces the task of selecting and integrating into the educational process such forms, methods, and means of education, which with minimal expenditure of resources can provide the most effective result. To attract

students to the active learning process, who spend much of their time in the world of digital gadgets and technology, is possible only if you create a familiar environment for them. Therefore, the problem of organizing a modern digital learning environment has become quite urgent today (Toda et al., 2019). So, one of the latest technologies for organizing such an environment is the gamification of education, which is understood as a modern method of organizing the educational process, which uses game elements in a non-game context, in training in particular (Seaborn & Fels, 2015).

So, the purpose of the study is to identify the features of gamification in cultural and art education and analysis of innovative forms of teaching and development of the educational process in the field of culture and art, and among the main objectives - highlighting the structure, components, and conditions of implementation of this method and establishing the place of gamification among other methods of organizing educational activities in educational institutions.

## 2. Literature Review

It is clear that changes in society require changes in education, which leads to new forms and means of learning. One such form of educational process organization is gamification. The definition and introduction of game elements in the educational process are considered one of the innovative forms of building a training session.

Many scientific works have been written on gaming technologies (Fadhli et al., 2020). They define the gamification as a certain process in which two or more parties take part, competing with each other and pursuing a certain goal. The use such a strategy in education will improve the educational goals. It is a kind of activity in which social and cultural relations between people are recreated. Many researchers in this field (Toda et al., 2020) note the mobilization and activation of the possibilities of the individual, the realization of his/her creative potential, since the game has such characteristics as improvisation, competitive spirit, emotional component and pleasure.

The value of gaming technology cannot be exhausted and assessed by entertaining and creative possibilities. Its phenomenon lies in the fact that, being entertainment, relaxation, it is able to grow into learning, creativity, modeling human relations (Ahmad et al., 2020). In modern higher education, which relies on the activation and intensification of the educational process, the use of gamification is highly recommended. A number of works of leading domestic and foreign scientists are devoted to the study of the phenomenon of gamification, analyzing the theoretical foundations of the named method (Landers et al, 2018) note the feasibility of the game in education (Dichev & Dicheva, 2017), (Mekler et al., 2017). (Boudadi & Gutiérrez-Colón, 2020) emphasize the impact of gamification on increasing motivation for learning. This method is designed for teachers, especially middle school and high school who want to integrate digital technologies in the educational process, diversifying teaching-learning-assessment activities, to increase the attractiveness of classes and further motivate / involve students.

(Chan, Nah, Liu & Lu, 2018) describe the elements and experience of the game in terms of the students' ability to arouse motivation and their involvement in work tasks. In this context (Majuri, Koivisto & Hamari, 2018) analyze the educational goals of gamification, as well as the targeted and achieved results by using the immersive video game experience as a learning support.

It should be agreed with a number of experts (Suppan et al., 2020) that the expansion of the use of gamification, including for the purposes of organizational learning, the expansion of the capabilities of technological platforms for the introduction of gamification tools will help blur the boundaries between these concepts. This trend is observed by (Ofosu-Ampong, 2020) in terms of a number of implemented projects.

When considering the essence of gamification, researchers (Legaki & Hamari, 2020) are unanimous in that it is not a process of creating a game, but acts only as a transfer of individual positive elements, mechanisms and characteristics of the game (goal, rules, feedback and freedom of participation) to the non-game sphere.

However, there is no unity regarding the distinguished game elements and mechanisms, their importance in understanding the essence of gamification (Swacha, 2021).

Most often, gamification is defined by scientists (Huang et al., 2020) as the partial inclusion of game elements in the creation of an interactive interaction system without a full-fledged game as the final product.

So, we see that the phenomenon of gamification is analyzed by researchers on different sides: the use of game technology in a non-game context (Landers et al., 2017); the use of game technology in the educational process; a way to motivate and activate activities (Alsawaier, 2018), solving applied problems (Armstrong & Landers, 2017).

### **3. Methodology**

The indicated goals and objectives of the study determine the use of such theoretical methods as: analysis, synthesis, systematization, and generalization of scientific and scientific-methodological literature to clarify the state of research problem and specification of concepts on which this process is based, comparison and prediction; as well as empirical methods - questioning of the participants of the educational process in order to understand the place of the "gamification" method in the educational process of higher education.

The gamification method was introduced on the undergraduate audiovisual arts and production course. For this, game techniques and elements in the classroom were used to bring the learning process closer to the field of interest of applicants. Thus the gamification method was logically divided into structural units, which were gradually introduced into the learning process:

- 1) the light gamification method 1-2 month of studies;
- 2) the deep gamification method third month;
- 3) the combined gamification method during the second semester.

The main components of the gamification method were also considered: elements, mechanisms, dynamics and characters of the proposed games during the year. The intensity of the organization of the game was divided into three levels: easy, medium and hard. This structure of the lesson reinforced the principles of goal setting.

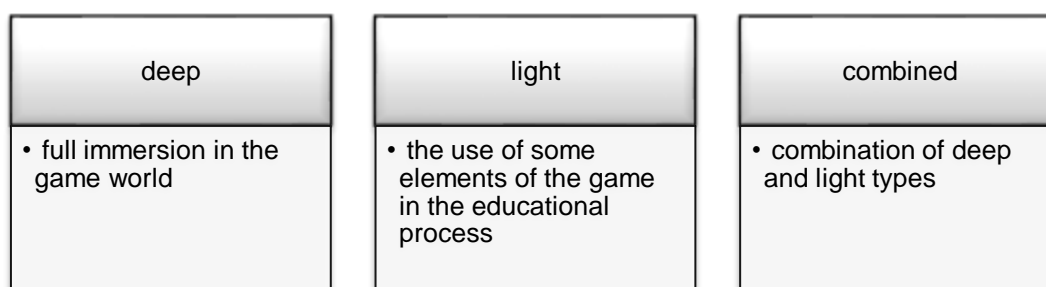
The mentioned aspects are considered in isolation and, in some places, haphazardly. In our opinion, it is necessary to consider gamification as one of the effective interactive methods that can be taken as a basis for organizing an educational session. All this suggests that gamification is not only a “new concept of education”, but also the emergence of a new trend in the educational process. Thus, the scientific novelty of the article lies in a versatile and at the same time complex and holistic consideration of the concept of “gamification of education” with a focus on the application of this method in training future specialists in the field of culture and art.

#### 4. Results and Discussion

It is known that today's youth spend a lot of time playing video games, so we should use game techniques and elements in the classroom to bring the learning process closer to the sphere of interest of education applicants. Since the easiest and most effective way to assimilate knowledge, apply it in practice, and master soft skills is a game.

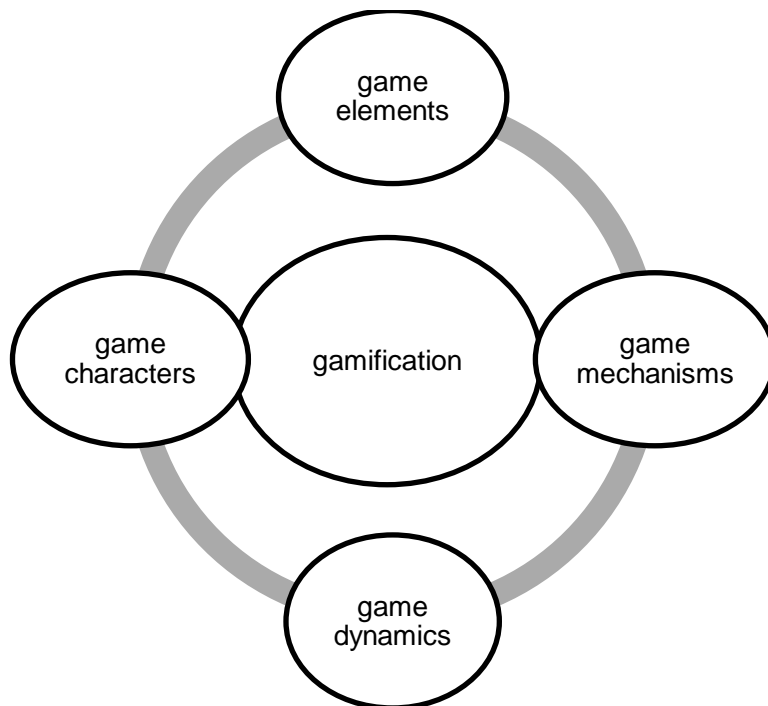
The goal of gamification of the educational process is to develop vibrant, interesting, and informative learning activities by introducing game elements. It should be remembered that in a learning game the obligatory element is the educational content.

Modern researchers have identified 3 types of gamification that have applications in education: light, deep, and combined (Karmanova & Shelemetyeva, 2020). The characteristics of each type are presented in Fig. 1.



**Fig. 1.** Characteristics of gamification types, Source: author's development.

The use of the gamification method in the educational process should be based on a prepared algorithm and a combination of certain factors. The components of the gamification method are shown in Fig.2.



**Fig. 2.** The components of the gamification method.

Source: author's development.

So, the basic components of the method can be considered: the elements, mechanisms, dynamics, and characters of the game (Willig et al., 2021).

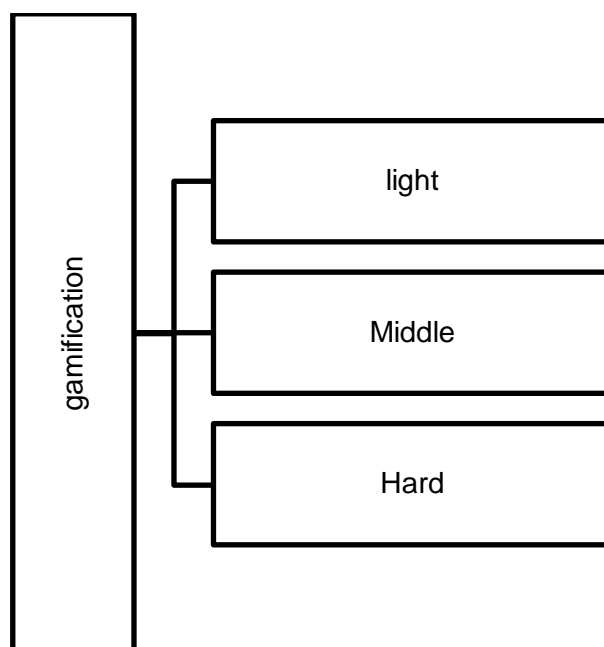
Elements refer to all the components of the game's organization - tasks, levels, conditions, and ratings. Mechanisms of the game imply certain scenarios and plots by which the game develops and in accordance with which related elements are added and characters act. The dynamics of the game are responsible for the emotional state of the students during the game; it is a factor responsible for the cognitive interest in learning and keeping it at the proper level. Characters are the participants of the game, distributed according to the roles (Willig et al., 2021).

There are four types of basic player characters: rivals, careerists, explorers, communicators (Tsarapkina et al., 2021).

The first type is players whose goal is to demonstrate their own knowledge and skills, to defeat their opponents, and to prove their own advantage. The task of players of the second type is to compete on their own system of play, not with other participants. Their priority may be to gain experience. Participants of the third type prefer to explore the game

“inside”, so for them, the levels and experience points do not matter much. The fourth type of player focuses on interaction with other players during the game.

According to the intensity of the organization, gamification can occur at three levels (Manzano-León et al., 2021). The intensity of the game depends on how much immersion the student needs in the game process. See Fig. 3.



**Fig. 3.** Levels of the game assembly according to intensity.

Source: author's development.

As can be seen from the figure, the intensity of the organization of the game has three levels: light, middle and hard.

The peculiarity of the light level is that the process of the game takes place in a light form, does not change the basic mechanisms of learning, but gives more dynamism to the activity. At this level, it is possible to use separate game elements - points, ratings, encouragement, support, for example in the form of likes or emoji. Gamification of light level is more appropriate to use at the initial stages of introducing this method in the educational process. However, it should not be forgotten that students should learn, not play when implementing this option.

The middle level implies a more significant expansion of opportunities and elements of the game in the learning process. During this variant of the organization of training, there is already a certain plot and story, but there is no distribution by roles.

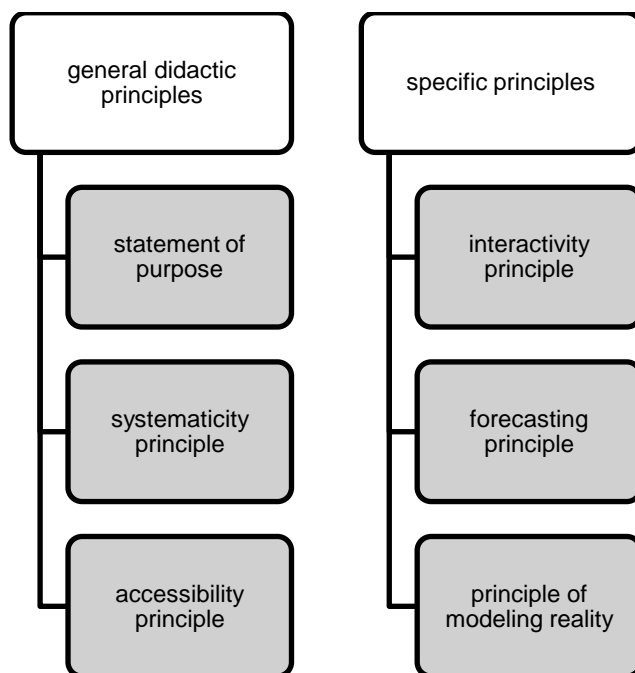
The middle level of gamification is appropriate for team or group work. Under such conditions, each group can have its own name, place, or position in the ranking they occupy in the process of performing game tasks.

This level of gamification will be relevant and effective when a certain curriculum has already been created, its content, purpose, and objectives are highlighted, which allows you to understand at what stages it becomes possible to add game elements and to what extent.

The peculiarity of the hard level is that when organizing training in the game scenario students are distributed in roles. In this case for the game certain conditions are created, rules are set, appropriate tasks are selected, which students must perform by the distributed roles.

According to the types and levels of organization of gamification in education, we can talk about the ways of applying gamification in classrooms, which can be divided into four: reorienting the interaction between students in class; reorienting the structure of class; redistributing roles between students in the group; using bonus experience points instead of grades (Buckley & Doyle, 2017).

The application of gamification elements to improve the efficiency of the learning process requires the creation of a comprehensive model built on the synthesis of general didactic and specific principles (Fig. 4).



**Fig. 4.** Fundamental principles of gamification.

Source: author's development.



General didactic principles include the principles of goal setting, consistency, and accessibility (Vargas-Macías et al., 2020).

The principle of goal setting implies that the game is aimed at achieving a very specific and clearly defined learning goal. The filling and implementation of the game is carried out according to this goal.

The principle of consistency determines the involvement of the gamification method in the system of other teaching methods because game technologies cannot be isolated from other teaching methods and means; and, on the contrary, they should complement the results or compensate for the shortcomings of other educational methods and technologies. Consequently, each training session, as well as the educational process as a whole, should be considered comprehensively and systematically, in full interaction and synthesis of all teaching methods and means.

The principle of accessibility is especially important because it is a question of understanding the goals and rules of the proposed game. Here much depends on the skill of the teacher, because it is he or she who must take care that the rules of the game are clearly formulated and understood by all participants, the rewards are accessible, but not too easy.

In addition to the above-mentioned general didactic principles, the effective application of gamification as an innovative learning technology contributes to the implementation of more specific principles such as: the principle of interactivity (stimulates the involvement of all participants in the learning process), the principle of anticipation (provides the formation of a common goal of the game, generation of an action plan, preparation of a scenario, the definition of the game rules, etc.), the principle of reality modeling (sees the development of the game by a certain model of real life, socially or professionally significant situation) (Vargas-Macías et al., 2020).

In general, to implement a game in the learning process, it is necessary to develop and think in detail the plot and scenario of the game according to the desired end goal, the system of game characters and the mission of each of them, the story that will be presented throughout the game, levels of goal achievement, criteria for accruing bonuses and points, the reward system (Głowacki et al., 2018). It is also necessary to take into account the fact that any game should be limited in time and provide feedback after its completion for further changes.

Instead of using the traditional educational grading system in the classroom during the game, it is more appropriate to use experience grades, according to which the steps that students will climb in the process of mastering the learning material and acquiring certain knowledge can be developed.

Gamification can be used in the teaching of different disciplines and at different stages of the lesson. However, to organize a lesson with the addition of game elements special technical means are usually needed. The choice of tools is determined by the final goal and objectives of the lesson. It may be the addition of video and audio content, graphics, templates, maps, etc. Today is already actively used a number of Internet platforms and applications aimed at implementing game moments in the classroom, among them Kahoot, Joomla, Learning Apps, Drupal, WordPress, and others. Some applications offer standard game scenarios, others have a flexible format (Bicen & Kocakoyun, 2018).

One of the most common applications that can be used in the learning process to create playful moments is the Miro virtual online board, which has a number of interactive tools in its arsenal. It opens up the possibility of designing and creating countless interactive games with different plots. Participants in such quest games can play the role of travelers, superheroes, rescuers, detectives, etc. (Malegiannaki & Daradoumis, 2017). An example of a game of such a format could be, for example, a web quest Theatral to test the level of formation of professional communicative competence of future specialists in the field of culture and arts. Work on the quest not only provides a test of basic knowledge and lexico-grammatical skills on the topic of "Theatre Art" but also provides a number of tasks containing work with visual materials (theater map, stage, make-up rooms, etc.) and native foreign languages, analysis of foreign language information presented both in written (play script) and oral (actors' performances) forms.

Another variation of the above method is the most popular game of the present Among Us, which involves assigning roles, allocating certain characters, each with their own mission, receiving points, and rewards for correct answers (Xu et al., 2017).

At more advanced stages of training, it is advisable to use more complex composition and organization of games, which are based on tasks of a complex nature. These can be, for example, group quests in the course of which students should discuss a given professional topic, organize a debate, and argue their position. Quests are peculiar game tasks that imply the presence of a plot. The quest gives structure to the game process, organizes the plot. Work on quests promotes the actualization of the professional knowledge received and the strengthening of interdisciplinary connections (Jakshylykov & Nurmatov, 2016).

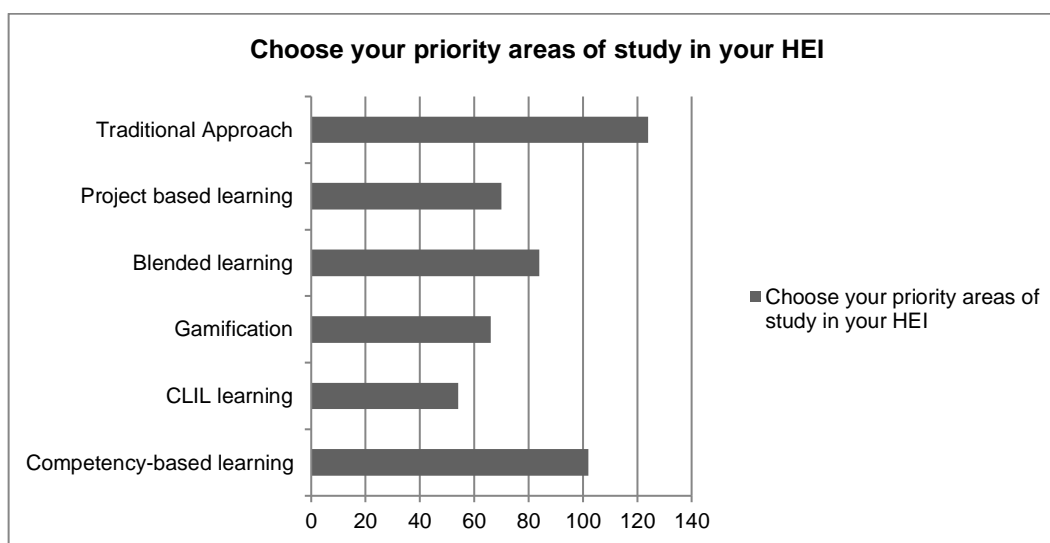
Gamification can be used as a form of controlling the assimilation of learning material. For this purpose, as a rule, it is proposed to perform complex tasks. For example, at the final stage of studying a certain topic, it is advisable to conduct quizzes using the Internet platform Kahoot, etc.

Different phrases can be used to change the interaction or role allocation in the gamification process, which will be used in communication. To change the structure of the lesson, the instructor can offer students to perform practical and modular tasks in game form.

The choice of gamification elements, on which the progress and interest of the game depend, deserves special attention. Gamification elements include: points (necessary to track game progress), awards or medals (additional bonuses for special achievements and successes), levels (thematic sections from easiest to hardest), virtual currency, etc. (Hamari & Keronen, 2017).

The advantage of gamification among other teaching methods is that the game helps students get rid of the fear of failure, the fear of making a mistake. In a game, it is possible to go through the level again after working on mistakes or mastering a new space. In addition, tasks can be made harder or easier according to the level of the game: for example, as in a normal game, after passing a level there is a transition to the next, next level with new tasks.

The analysis proves the relevance and necessity of introducing gamification elements in the educational process, using fully or partially game elements in training sessions. However, in practice in higher education institutions during the professional training of specialists, in particular the sector of culture and art, this direction has not received to date significant development and application. This is evidenced by certain studies conducted at the ZHEI (KZVO "DANO" DOR", NTU "DP", etc., where these specialists are trained. A questionnaire survey was made of 50 teachers and 450 students/trainees at the selected institutions. The results of the survey have testified to the low popularity of gamification as compared to other methods of teaching. The biggest number of votes is still given to the traditional approach to learning - 124, next comes competency-based learning which was chosen by 102 respondents, distance learning has spread learning - 84 answers, the project method is gaining popularity - 70. The least number of responses was given to CLIL learning - 54 and gamification - 64. The survey data are shown in Fig. 5.



**Fig. 5.** Distribution of indicators of the popularity and prevalence of teaching methods. Source: author's development.

In our opinion, the main reasons for the unpopularity of the gamification method are unpreparedness of the teaching staff of higher education institutions to apply this method in the educational process, lack of technical or other opportunities for the implementation of this method, lack of awareness of the opportunities and advantages of this method.

Undoubtedly, it is necessary to popularize the gamification method in education, but one should not forget about its percentage ratio to other forms of work. The application of gamification in the educational process does not exclude traditional forms of classes, which include lectures, practical and laboratory classes, seminars, colloquiums, scientific meetings, where the necessary educational material is presented.

Based on the studies conducted, it can be noted that gamification, like any teaching method or technology, has a number of advantages and disadvantages. Among the positives we can mention interactivity, increased motivation for learning, facilitation of immersion into the subject of learning, possibility to quickly apply the acquired knowledge in practice, involvement in the activity process, the disappearance of fears due to the lack of critical consequences, collective cohesion, etc. In addition, game elements are designed to captivate students, stimulate cognitive interest, increase attention, have a positive effect on self-organization and self-improvement. Moreover, in the conditions of partial transition to the distance learning format, the gamification method can enhance students' inclusion in the learning process by engaging sensory systems and influencing emotional centers.

Among the negatives are the following: the transition from the passion for the game to unhealthy excitement, and, as you know, constant and unhealthy competition can create tense relationships in the team and group, which affects the overall atmosphere of the class; refocusing the goal - the emphasis is not on gaining knowledge, but on getting a reward; significant time spent on teacher training.

The role and place of the teacher in the process of applying the gamification method in the educational process deserves special attention. It should be noted that it is the teacher who has the task of adapting educational and methodological material to the game program shells. That is why the game developer (teacher) should have knowledge not only in the discipline taught but also in pedagogical psychology, pedagogical design, and partially Web-design.

In general, elements of gamification in the process of training future specialists in culture and art cultural, artistic, and pedagogical specialties contribute to increased motivation for cognitive activity through interactive learning, design of educational games, and plot. The set game tasks develop intrinsic motivation to perform educational tasks and achieve educational goals.

Consequently, gamification is a modern method that helps to stimulate and maintain students' interest in the learning process. However, the said method is better used as an

additional one, although it is capable of influencing the universal way of building the educational process.

## 5. Conclusions

The application of gamification in the training of future specialists in higher education institutions of Ukraine is due to the importance and necessity of changing the educational process to develop students cognitively and personally, to acquire the necessary competencies and experience, sufficient for the future professional activities.

Gamification uses game elements but is not a game that allows adding elements of interactivity, entertainment, multimedia to the learning process. Applying the game in the learning process opens up the possibility of additional motivation, which is facilitated by such factors as competitive elements, prize incentives, the logic of overcoming obstacles, etc. Throughout the learning process elements of the game, help to increase interest in the studied subject, stimulate the acquisition of positive self-esteem of the contribution to the collective and individual work, provide opportunities for learning information in an interesting and familiar to students' game format.

The use of gamification in the educational process is aimed at the implementation of competence and activity approaches, as it involves all participants in active educational activities, stimulates them to solve complex problems, demonstrates the level of formation of general cultural and professional competencies. At the same time, the forms of gamified approach implementation may differ and contain both classroom and extracurricular forms of work, team, group, and individual learning activities.

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