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Серія «Культура і мистецтво», Серія «Історія та археологія»)*

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Журнал видається за підтримки Інституту філософії та соціології Національної академії наук Азербайджану, Всеукраїнської асоціації педагогів і психологів з духовно-морального виховання та Всеукраїнської асамблеї докторів наук з державного управління

Журнал публікує наукові розвідки з теоретичних та прикладних аспектів філології, соціології, науки про освіту, історії, археології, а також, культурології та мистецтвознавства з метою їх впровадження у сучасний науково-освітній простір.

Цільова аудиторія: вчені, лінгвісти, літературознавці, перекладачі, мистецтвознавці, культурознавці, педагоги, соціологи, історики, археологи, а, також, інші фахівці з різних сфер життєдіяльності суспільства, де знаходять застосування тематика наукового журналу

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THE IMPACT OF GAMIFICATION ON THE MOTIVATION AND ACADEMIC PERFORMANCE OF HIGHER EDUCATION STUDENTS

Abstract. The abstract is dedicated to the analysis and implementation of gamification as a modern pedagogical technology in the content of educational process. Gamification is defined as the use of game elements and game design techniques in non-game contexts to increase motivation, activity and involvement of users in solving educational tasks.

The study emphasises that the effective use of gamification is based on the analysis of user behavior and psychological principles of motivation and on the creation of favourable conditions for engaging students. According to the research, the integration of gamification into the educational process helps to increase motivation, generate interest in learning, and develop practical skills.

Theoretical and empirical methods, such as analysis, generalisation, comparison, survey, testing are used in the study. The theoretical significance of the study is to substantiate the feasibility of using gamification to motivate students of higher education and improve their academic performance.

The practical significance of the results obtained is to systematise the theoretical material on the topic and develop methodological recommendations for the effective use of gamification in higher school.

The paper consistently examines the theoretical and practical aspects of learning, systematises the key elements of gamification, highlights the organisational and pedagogical conditions for the introduction of gamification, substantiates the stages of gamification of the educational process, and provides recommendations for the introduction of gamification in the classroom. The results of the study confirm that the use of gamification methods contributes to the modernisation of the educational process, focused on the needs of modern students, creating a positive emotional atmosphere and ensuring a deeper learning experience.

Keywords: academic performance, educational process, gamification, Higher Education Institution, motivation.



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«ВПЛИВ ГЕЙМІФІКАЦІЇ НА МОТИВАЦІЮ ТА УСПІШНІСТЬ СТУДЕНТІВ ЗАКЛАДІВ ВИЩОЇ ОСВІТИ»

Анотація. Дана робота присвячена аналізу та впровадженню гейміфікації як сучасної педагогічної технології у зміст навчального процесу. Гейміфікація визначається як використання ігрових елементів та прийомів ігрового дизайну в неігрових контекстах для підвищення мотивації, діяльності та залучення користувачів до вирішення навчальних завдань.

У дослідженні підкреслюється, що ефективне використання гейміфікації базується на аналізі поведінки користувачів і психологічних принципів мотивації та створенні сприятливих умов для залучення студентів. Згідно з дослідженням, інтеграція гейміфікації в освітній процес сприяє підвищенню мотивації, формуванню інтересу до навчання та розвитку практичних навичок.

У дослідженні використано теоретичні та емпіричні методи, такі як аналіз, узагальнення, порівняння, опитування, тестування. Теоретичне значення дослідження полягає в обґрунтуванні доцільності використання гейміфікації для мотивації здобувачів вищої освіти та підвищення їхньої академічної успішності.

Практичне значення одержаних результатів полягає в систематизації теоретичного матеріалу з теми та розробці методичних рекомендацій щодо ефективного використання гейміфікації в навчальних закладах вищої освіти.

У статті послідовно розглянуто теоретичні та практичні аспекти навчання, систематизовано ключові елементи гейміфікації, виокремлено організаційно-педагогічні умови впровадження гейміфікації, обґрунтовано етапи гейміфікації освітнього процесу та надано рекомендації щодо впровадження гейміфікації на уроках. Результати дослідження підтверджують, що використання методів гейміфікації сприяє модернізації освітнього процесу, орієнтованого на потреби сучасних студентів, створює позитивну емоційну атмосферу та забезпечує більш глибоке засвоєння навчального матеріалу.

Ключові слова: академічна успішність, освітній процес, гейміфікація, заклад вищої освіти, мотивація.



Introduction. Problem statement. In addition to updating the content, the problems of modernizing methods, means, and forms of teaching are being actualized. A new direction in pedagogy— digital didactics — explores the latest technologies that, according to scientists, are changing traditional education: distance and blended learning, gamification, learning through video games, artificial intelligence, etc. These technologies are intended, first of all, to strengthen students' motivation in learning.

Analyses of recent research and publications. Modern research proves that the latest technologies, including gamification, are based on motivation. Such scientists as Boyko O., Zelinga Y., Dyadikova O., Smiederle R., Rigo S.H., Marquez L.B., Faella F., Riccardi M., etc studied the introduction of gamification in the educational field. Theoretical aspects of gamification are revealed in the works of B. Burke, K. Dichev, K. Huotari, Y. Hamari, Lee, G., & Ham, K., etc., in which the hypothesis is put forward that games animate our lives, contribute to the formation of positive emotions, form curiosity, and also strengthen social relationships.

Gamification in higher education schools uses game-based elements and principles to engage students in learning. It can include various techniques, such as points, levels, challenges, and rewards, to motivate students and increase their activity and engagement [1, 4].

Nowaday, studies confirm the effectiveness of using gamification in the high school environment. Thus, according to a 2015 Massachusetts Institute of Technology study, gamification in the school context helps to improve motivation and learning outcomes. Students who participated in gamified programs showed higher engagement, passion, and desire to succeed than students who used traditional teaching methods [5, p. 13].

Another study conducted in 2017 by Columbia University found that gamification in schools contributes to students' academic achievement. Students who participated in gamified educational programs had a higher level of material assimilation and better academic performance than students who did not participate in such programs [5, p. 14-15].

A study published in *Computers & Education* in 2019 confirms that school gamification increases students' motivation and activity. Study participants showed greater interest and diligence in completing learning tasks when presented with gamified challenges and rewards.

Statistic data suggest that gamification in education can positively impact students' learning, motivation, and academic performance. It can help make learning more exciting and effective by engaging students in active and fruitful cooperation.

All researchers agree that the effective use of gamification improves the learning environment and has a qualitative impact on the formation of cognitive



interest in learning. Scientists higher education institutions outline gamification as an innovative method that can involve students in "real-life situations and motivate them to certain actions and desires when assimilating knowledge" [10, 19, p.160-161].

The interest of scientists and teachers in gamification as an educational technology, on the one hand, and the lack of manuals and methodological recommendations for the successful implementation of this technology in the higher school educational process, on the other, makes the topic relevant and timely for further study.

The purpose of the work is to analyze theoretical sources that describe the principles of gamification, substantiate gamification to influence the motivation and performance of students in higher education institutions, and develop appropriate recommendations for implementing this technology in the educational process of higher education institutions.

The research object is the correlation between gamification, study motivation, and student academic performance in higher education institutions.

The research subject is gamification, the latest educational technology for involving high school students in the educational process.

Research objectives:

1. To analyze the didactic functionality of gamification.

To study the experience of teachers in organizing the educational process related to gamification.

2. To investigate what tools, devices, and activities can be used in pedagogical practice using a gamified approach in higher education.

3. To substantiate the organizational and pedagogical conditions for the introduction of gamification to increase the motivation and performance of students of high education institutions and substantiate the steps of gamification implementation.

4. To form methodological recommendations for implementing gamification technology in the educational process.

This research used theoretical and empirical methods, such as analysis, generalization, comparison, survey, and testing.

The study's theoretical significance substantiates the feasibility of using gamification to motivate high education students and increase their academic performance.

The practical significance of the results obtained lies in the systematization of theoretical material on the topic and the development of methodological recommendations for the effective use of gamification in high school educational process.



Presentation of the main material. Standard pedagogical methods and technologies have had different educational effectiveness in recent years. Schoolchildren need to be made aware of the goals of their activities; therefore, they need more motivation to learn. One technique for improving learning performance is gamification and using computer games during teaching—digital Game-Based Learning (DGBL). The introduction of game components into the educational process allows to increase students' cognitive interest, develop educational motivation and initiative, and form the ability to express their own opinions.

The concept of "gamification" appeared in 2008 in digital media but was not widely used until almost 2010 [9, p. 44-45]. Although this concept is relatively new, the literature offers many interpretations. Gamification is "applying game thinking and mechanics to engage users and solve problems" [10].

The concept of "gamification" can be explained as using a game based on aesthetics, mechanics, and game thinking to engage, motivate to act, promote the acquisition of new knowledge, and solve problems [3, 8, 11]. Agreeing with the opinion of K. Verbakh, the leader of the gamification course within the framework of the online education project "Coursera," gamification is the application of game components and methods of creating games in a non-game sense [18, p. 72-73].

Gamification in education is a process of extending the game to various aspects of education, which makes it possible to explore the game as a form of educational activity, as a way of teaching and upbringing, and as a method of coordinating a single educational process. Game components have always existed in the educational process. But, recently, the growing popularity of computer games has led to their active involvement in the educational process. The gamified environment competes with standard educational materials due to the use of exciting design and loyalty programs in games. The positive aspects of gamification in the educational process are the student's natural curiosity and involvement in the educational process. The game activates student's mental processes; attention, awareness, curiosity, perception, and reasoning are included. Gamified elements allow you to add variety and entertainment to the educational process. However, there are also some limitations: the depth and durability of the acquired knowledge will be limited, and it will take a lot of time and resources to develop games.

To introduce gamification, you need a precise plan and a highly qualified specialist to develop a scenario. A separate approach is required for each student. As for the gamification of the educational process in general, several techniques are distinguished in this case. According to one of them, gamification components are introduced into the management of the educational process. The



second direction emphasizes the need for gamification for management and the educational process. From this, we can conclude that gamification can be used widely in education, so the prospects of this methodology and its components become relevant [16, p.68-71].

Due to various elements, gamification covers many educational process organizing methods. First, we need to mention the didactic game, which has the primary role in gamification. In this regard, considering scientific sources that pay attention to game methods and gamification makes it possible to single out the main elements of the gamified learning process [12].

The gamified learning process can use all the elements at once or some of them to make achieving didactic goals and objectives possible. Educational services allow you to include gamification components in the educational process, which is constantly growing. Gamification of the educational process is all about pleasant emotions, genuine interest, fun, and continuous development. Students of any grades naturally love games. In games, motivational means can encourage students to play more often [14].

As mentioned earlier, there are already enough gamification processes in education nowadays. Standard and accessible examples are honor boards, assessment methods in elementary school (instead of a five- or 12-point system—grades in the form of a sun, a cloud, etc.), tournaments between classes for a conditional "currency", the use of game components immediately during lessons, etc. Gamification of education can be called the use of games, game practices, and game techniques for educational purposes.

Professor K. Werbach proposed an image of gamification components as a pyramid. Gamification components include external elements: game levels, user avatars, virtual artifacts, virtual rewards, and quests. The principles of work motivate the player to move on. In other words, it can be a chance to get a reward, feedback, confrontation, interaction with friends and other players, or gain new tools [18, p. 73-75].

The main concepts used in the gamified software are players, users, and potential users; actions – reactions that are required from the user; skill levels – classification of users by levels of results; and Motivation the formation of motives for actions and reactions.

Like other methods in the educational process, gamification has pros and cons. The most significant advantage of gamification is that it focuses on the unknown or incomprehensible to the student in a particular subject, gradually gives new data and knowledge, and only then there is a transition to a new topic. This sequence makes the educational process much more effective.

Gamification, according to most scientists, affects the following abilities of participants:

- develops strategic understanding, creativity, the ability to take motivated risks, independence, and courage in decision-making;



- promotes the activation of communication skills, the ability to work in a team, self-organization and self-discipline, and the formation of the ability to search for and work with information purposefully;

- raises the degree of motivation of the student to master the subject because he becomes interested in gambling, accurately understands the usefulness of spending time mastering the subject, and learns to apply the acquired knowledge in practice [17, p.303-306].

The game form of learning does not create moral pressure of obligations;

knowledge is assimilated unobtrusively, and the student's talents progress. The educational process is aimed not only at accumulating knowledge but also at comprehending it and using the acquired knowledge and skills in real life when expressing one's opinion [10].

Thus, A. Christian argues that with the intention not only to acquire new knowledge but also to assimilate, comprehend, and use it in life, it is necessary to work out the knowledge passed through experience. These games provide an undeniable opportunity for learning from one's experience [7, p. 22]. Of course, it is possible to simulate a particular situation for learning in the educational process, but this requires a lot of financial and time resources so that it can be challenging. In addition, only games can create complex situations or even a conditional world. In addition to the many advantages of gamification's penetration into the educational process, there are also certain disadvantages. First, due to the increased time students spend at computers, their unhealthy effect on the child's body can manifest, and vision can worsen. The gamification process requires a high level of computer literacy of teachers and students, good technical equipment, and time spent preparing tasks.

Technical malfunctions (power outages, lack of Internet access, computer breakdown, etc.) can also be a problem, which calls into question the conduct of the lesson. Using game concepts and mechanisms is effective, as it keeps students' interest for a long time, allowing them to form their own opinions. The existence of incentives for specific achievements and the absence of punishments for making mistakes enable the student to progress towards the result, regardless of wrong steps. However, teachers think gamification should not be overestimated and used everywhere [5, p. 15-16].

Gamification is primarily designed to improve education quality, facilitate student knowledge acquisition, and stimulate children to learn. It should attract attention, not distract. Therefore, it should be applied selectively [15]. A review of the literature makes it possible to highlight the importance of gamification for the educational process, which, according to scientists, is as follows:

- gives the teacher the means to motivate students to the educational process;



- spatial imagination, fantasy, reaction, and various mental skills improve;
- allows students to study in an interactive environment where they can train, make mistakes, and correct errors;
- promotes the mastery of terms and rules in practice that is theoretically difficult to explain;
- allows the teacher to prepare students for independent work.

The critical stages of gamification of the educational process are the following steps [16, p. 69-71]:

- 1) Elaboration of the plot. You first need an exciting story to turn a lesson into a game.
- 2) Formation of the goal. Students need to know specific game goals to which they are going.
- 3) Division of roles between children. Divide the class into groups and assign everyone a role so all students are busy.
- 4) Developing tests and rules of the game. The key here is an exciting context. The next event must always be ahead; there should be no break.
- 5) Remembering the mechanics of the game. Rules, cause-and-effect relationships, and how the game is played are essential. The game should take place dynamically, with the constant involvement of all children.
- 6) A strong technique is a catch in the plot.
- 7) Using a tablet or phone in the classroom will help.

The main thing in gamification is to hide difficulties with the help of exciting game missions (for example, difficulties - monsters, test work - disaster). The goal of gamification is a set of goals that a student must achieve after mastering a specific topic, increasing the motivation and curiosity of children. The game's components allowed in the lesson are points, a rating mechanism, a progress scale, and other elements. Specific treatment in the classroom is ensured, in violation of which fines can be prescribed and applied in the game [11, p. 104-107].

Thus, students focus on the learning process and the need to control their behavior. Analyzing the practical experience of teachers in Ukraine, we conclude that game tools in the educational process stimulate the centers of pleasure in the brain. According to global statistics, about 90% of children play games worldwide. Over the past 10 years, 65% of teachers say from their own experience that they have noticed an increase in students' interest in the educational process due to using gamified elements [2, 19, p. 163].

So, we can conclude that gamification of learning is an effective method to keep students interested in the educational process and increase their motivation and success. For example, gamification can significantly facilitate learning a foreign or one's native language. Having studied the experience of



teachers in Ukraine, it is obviously seen that integrating gamified tools into the educational process simplifies memorizing and reproducing new material.

According to most scholars-educators, the easiest ways of gamification in learning a foreign or the native language and literature online or offline are flashcards and quizzes [5, p. 17]. Having analyzed the scientific and pedagogical literature, we concluded that focusing only on game mechanisms creates an erroneous scenario for achieving the goal. The gaming experience's positivity lies in the game's satisfaction, not its process. When planning learning activities in a gamified environment, gamification should be created and planned simultaneously since gamification cannot work under improperly planned materials or activities.

The founder of these gamification principles in education is Professor K. Werbach from the University of Pennsylvania, who defined "gamification as the use of game elements and game techniques in a non-gaming context, for example, business or study" [18, p. 74-75]. This allows us to state that gamification is a combination of game elements and game design methods in non-game contexts; the approaches typical for games in non-game contexts aim to attract users and increase their activity in solving different problems and tasks.

Gamification is based on the analysis of user behavior and the methodology of correct motivation, which is based on the analysis of a given person's typical behavior [7, p. 22,].

Scientists emphasize that gamification contributes to students' perception and processing of information: quick access to information is achieved, and the variability of its use, interactivity, visualization, etc., is increased [1, p. 55-70]. Motivation for learning is strengthened through the practical construction of communication processes, which consist of quick feedback and optimization of intragroup communication [8].

Researchers O. Boyko and Y. Zelinga substantiate that "gamification in education is the process of spreading the game to different areas of education, which allows us to consider the game as a method of teaching and upbringing, and as a form of educational work, and as a means of organizing a holistic educational process. The range of applications of gamification in education is quite wide, which allows us to talk about the prospects of this technology and its elements" [2, p. 43-45].

According to all scientists, gamification contributes to the motivation and engagement of the "player." The main factor in this is the introduction of computer games and online applications into those activities for which game contexts are unfamiliar. With the introduction of gamification, as a new technology, into the content of modern education, it is necessary to analyze and systematize the already-formed experience to solve educational problems.



In the sources devoted to the problem of gamification in education, such categories of game elements as "dynamics," "mechanics," and "components" of the game are substantiated [7, p.21-23]:

- dynamics – the use of scenarios that attract the player's attention and need to be answered in the present tense;
- mechanics – the use of scenario components typical for gameplay, for example, virtual rewards, points, statuses, virtual goods, etc.;
- aesthetics—the formation of a generalizing game effect that makes it possible to get emotionally involved; social interaction is a large selection of techniques that support the interaction between players inherent in games [9, p. 46].

This gamified system structure is universal for various activities, including learning. The main gaming requirements are as follows:

- manifestation of emotions (joy, success, frustration, rivalry, curiosity, etc.);
- presence of restrictions;
- presence of a consistent storyline;
- tracking dynamics during the game: either progress or regression;
- social interactions with other participants in the game.

Note that speakers cannot be directly implemented into the game; they can be used to control the process.

The task of the mechanics is to be involved in the game:

- task decision, which is a mandatory condition or further advancement in the game;
- randomness of chance;
- reverse communication for tracking progress (regression);
- clear conditions for interaction between participants;
- a form of competition in which there are necessarily both winners and losers;
- teamwork to achieve a common goal;
- receiving bonuses or items valuable for further play
- rewards for specific achievements;
- alternate participation;
- indicators that unambiguously allow you to determine the winner.

In turn, mechanics and speakers are visualized in the form of components, among which the most important are:

- avatars for player visualization;
- badges for visualizing achievements;
- points for quantitative reflection of achievements;
- a board for demonstrating achievements;



- the presence of levels;
- trials, quests, and battles;
- the presence of super-tests to move to a higher level;
- visual transition to the next level with content replacement;
- opportunity gift to other players or donate valuable resources;
- the presence of ratings to visualize the player's achievements;
- the ability to form teams to play together.

Most gamified systems are based on points, badges, and ratings. Points are used to make players feel their skill and advancement. Each additional point shows the account's more considerable value. Often, badges are used along with points, which visualize players' achievements within the current game. Thus, upon reaching specific points, the player receives a new badge that certifies personal advancement [5, p. 18-19].

Badges have a positive motivational effect and encourage new players to imitate the best game mechanics. Badges are symbols of virtual status, which changes depending on the conditions and course of the game.

Ratings are public indicators of advancement in the game and confirmation of status. They are believed to be powerful motivators, as they allow players to gain additional opportunities in the game [8].

Thus, gamification is a powerful learning tool that integrates game-like elements into non-game contexts to boost learner motivation and engagement. This systematic application of game principles provides educators powerful tools to enhance learning experiences and foster active participation, which may subsequently improve academic performance.

Motivation as a leading principle of gamification. Gamification as an activity technology is based on complex psychological and behavioral principles, among which researchers distinguish motivation, a sense of invention and achievement, status, and reward. Motivation refers to the processes that stimulate and support purposeful activity. Thus, in modern research, motivational processes are defined as "personal, internal influences that lead to such results as choice, effort, perseverance, achievement, and regulation of the environment" [14].

Scientists distinguish between and extrinsic motivation.

Intrinsic motivation is personal for a person and allows you to enjoy studying the material. Unsurprisingly, intrinsic motivation corresponds to higher academic performance and predicts student performance and higher achievements [11, p. 109-115].

Extrinsic motivation comes from a more external source and involves a conditional reward. For example, students may be motivated to get satisfactory grades because they receive tangible rewards or compliments for good grades.



Such motivation is fueled by receiving external rewards or avoiding punishment. The award may even include the approval of others, such as parents or teachers.

According to self-determination theory, three basic psychological needs are fundamental to motivation: autonomy, competence, and kinship [13, p. 200-202].

Student autonomy means that students own their learning or initiative. This can be formed by involving students in decision-making. An example is blended learning, which combines lessons from the whole class with independent learning. It is also essential to develop students' self-control skills because by modeling and thinking aloud about their responsibilities, they set themselves up for success.

When considering competency issues, students should feel they can succeed and grow. Helping students develop their self-esteem is extremely important. Help from the teacher, parents, and students' environment is needed so that they see their strengths and use them [13, p. 202-204].

Affinity refers to the student's sense of belonging and connection. Organizing team-building exercises to facilitate peer bonding is appropriate and encourages collaborative learning. It is essential to develop the teacher's relationship with each student.

During the implementation of any activity, a person tries to get a particular result: pleasure from interaction, a feeling of triumph of the winner, etc. A reward, a physical prize, or the opportunity to get recognition from friends is a powerful motivator that allows you to try on the role of a winner. This requires understanding the psychological mood of students, knowing what they are interested in, which superheroes are currently popular, etc.

Bonus content, special rewards, unexpected praise, new opportunities — such pleasant surprises arouse curiosity in people, which subsequently generates a desire to achieve the ultimate goal of a contest, task, or competition. The desire for status is biologically embedded - everyone wants to be the best at what they do. A well-structured competition, which provides many opportunities to demonstrate progress and success, allows you to prove your superiority to both the opponent and yourself. If you contribute to forming a person's positive self-image, it also helps to create the ability to feel respect for others. As a result, an appropriate behavior model is formed, which led to this [13, p. 203-204].

Progress indicators, badges, leader boards, public praise - these and other formats for displaying achievements are incentives for action. An important point is the constant publication of information about the course of events so that participants can evaluate their results and compare them with the successes of others.

Rewards can be emotional, physical, personal, or status-boosting. It depends on the teacher's choice regarding the students' interests and values.



Suppose a reward is chosen as an exclusively physical product; you should ensure its value is worth the effort the participants will spend to win—otherwise, few people will be willing to participate in the competition [3].

B. J. Fogg's theory of behavior, which investigates the conditions for changing behavior in a particular direction, is popular in the modern world. The model presented by the scientist explains the mechanism of human behavior when creating game conditions [6]. B. J. Fogg singles out such critical elements as motivation, skill, and motivation and proves that in the absence of at least one of them, the desired behavior does not occur.

In his work, the professor notes that internal motivators (interest, pleasure, comfort) require deep awareness and changes in personal guidelines and are, therefore, difficult to change. External ones (remuneration, status, etc.) can be organized. Motivational power is possessed by the need for achievements, status, rewards, self-affirmation, and competition [6].

However, to achieve a motivational stimulus, appropriate educational activities, based, in particular, on gamification, must be organized.

We are impressed by the research of K. Dicheva, D. Dicheva, K. Huotari, and Y. Hamari, according to which "gamification in education is an approach to encouraging student motivation and engagement by incorporating the principles of game design into the learning environment. The main goal of such a strategy is to motivate students to learn, to use an effective set of digital tools, to create comfortable conditions for socialization, etc." [4,7, p. 21-23].

Ch. Baah et al. argue that motivation's satisfaction attribute influences students' engagement in learning, whereas attention, relevance, confidence, and relatedness do not.

To implement gamification technology, it is necessary to consider the psychological aspects of increasing motivation and the appropriate organizational and pedagogical learning conditions. For example, the evaluation scale is a prerequisite for all participants to understand the criteria for evaluating their achievements at all stages of game activity. Moreover, such criteria are made public before the activities start and do not change throughout the game since the corresponding changes lead to ambiguity and do not consider the time for mastering new rules [2, p. 43-45].

The game should have a toolkit for each type of activity that players can understand to calculate the number of points for the completed stage. The ranking of successes should be clearly displayed to motivate all participants to achieve certain results.

Open access involves using digital resources and applications that allow players to track the transition to a new level. The number of attempts to complete the task is established to ensure the objectivity of evaluating the stage's results. In the extended format, time limits are also set [3].



Since gamification in the educational process is not just a game but a technology of involvement in educational activities, additional points for mobility are introduced for motivation, for example, the accrual of bonuses for activity, for independent study of specific topics, etc.

The goal is to enhance the learning experience, change students' behavior in the classroom, increase motivation, engage, and build critical thinking skills. Thanks to this, the student will feel motivated and become aware of himself or the learning process through significant experience. Gamification as a new approach to learning is primarily aimed at increasing students' motivation and involvement in the educational process to facilitate their learning and knowledge acquisition.

So, gamification as an educational tool covers many innovative methods and techniques to increase learning effectiveness. One of these methods is to personalize the educational process with the help of game elements. Personalization allows to consider students' individual characteristics, learning styles, and motivational profiles. For example, students can choose individual ways to complete game tasks, receiving bonuses for achieving certain milestones. This helps to create a sense of autonomy and contributes to the formation of responsibility for learning outcomes. At the same time, gamification is effectively implemented through digital platforms that offer adaptive feedback mechanisms. These platforms allow students to analyze their progress, receive recommendations for further improvement, and collaborate with other participants in the educational process. For example, the system can automatically generate personalized tasks depending on the level of student success, which supports the principles of a differentiated approach to learning.

The element of challenge plays a significant role in gamified learning. As researcher D. Ryan notes, creating challenges corresponding to students' difficulty levels contributes to developing critical thinking and increases interest in educational material. This approach helps balance the tasks' complexity and the students' capabilities, avoiding the effects of overload or loss of interest. Each challenge must be accompanied by instant and constructive feedback, which contributes to the formation of self-confidence and encourages further achievements [28, 68-78].

In addition, gamification pays considerable attention to the development of social skills. Using group tasks, team competitions, and cooperation mechanisms contributes to building positive relationships between participants, developing communicative competencies, and forming teamwork skills. For example, creating joint projects or completing quests in teams allow students to demonstrate individual achievements and success through joint efforts.

Thus, gamification is a tool for increasing motivation and an integrated approach to optimizing the educational process and improving student



performance. It combines elements of personalization, collaboration, adaptability, and challenge, forming an effective environment for student development. Teachers' main task is to ensure that the game elements correspond to educational goals and values and to consider each student's needs.

The study allows us to define gamification as a modern learning strategy, and the correct gamified approach will allow to achieve high learning results. At one time, the famous scientist Albert Einstein pointed out that games are the most effective form of research. He was sure that games were the way to something deeper and more meaningful than a child's waste of time [16, p. 70-73]. Often, games are the first method that children use to learn higher-order thinking skills related to creating, evaluating, analyzing, and applying new knowledge.

Many elements in games make them a powerful means of human learning. Often, they are structured to solve specific tasks by the participants of the games, which is a critical competence that is necessary in modern society. It must be recognized that the vast majority of games promote communication, cooperation, and rivalry between the participants of the game and, in the future – participants in grandiose life projects. Interesting and exciting are games with a rich narrative that awakens the creativity and imagination of the participants. Games can also be used in teaching, learning, and assessment.

The structural elements of games are particularly suitable for the current generation of learners. Gamification is an approach known for adding game elements such as storytelling, problem-solving, aesthetics, rules, collaboration, competition, reward systems, feedback, and trial-and-error learning to the non-game world. Game situations have already become widely successful in the professional sphere, particularly in marketing, training, and consumption [17, 303-309].

The versatility of gamification in the educational process allows it to be used at different levels of education—in junior, middle, and specialized schools and schools of higher education. It can be used not only for acquiring knowledge but also for practice to improve productivity, improve skills, or successfully apply knowledge in work. Gamification will help bring about changes in thinking and behavior. Combined with the principles of spaced repetition, the teacher can successfully use gamification to influence both aspects over time [14].

Given the many benefits of applying gamification in an higher educational institution, teachers must balance integrating these technologies with students' opportunities to benefit from including game elements in studying academic disciplines. For a game to achieve the desired result, it is necessary to develop a successful design that is both entertaining and educational, and games that interest students can help them improve their learning faster [11, p. 112-113].

Considering the above, we can say that gamification, as a modern learning strategy, integrates game elements into the educational process, contributing to



better assimilation of knowledge, the development of competencies, and increasing academic performance. This approach is based on psychological, pedagogical, and cognitive aspects that provide motivation, engagement, and learning effectiveness since gamification is based on the involvement of intrinsic motivation, which is an influential factor in achieving learning goals.

According to the self-determination theory of Deci & Ryan, 1985, people seek to satisfy three basic needs: autonomy, competence, and social connectedness. Gamification provides educational autonomy, allows students to choose ways to complete tasks independently, develops learning competence through feedback that allows students to experience progress and achievement, and activates social interaction through joint game projects and teamwork.

Game elements activate cognitive processes such as memory, attention, and thinking. According to the mental load model, learning is more effective when information is presented in an exciting and structured format. Gamification increases attention through colorful visualizations, interactive elements, and instant feedback and improves memorization through repetition fixed in the form of levels or tasks. It also contributes to problem-solving by creating scenarios that require analysis and decision-making.

One key element of gamification that ensures the growth of students' academic performance is the creation of social dynamics in the classroom. Team games, joint tasks, and competition contribute to the development of communication skills, the ability to work in a group, and the resolution of conflicts [10].

To achieve high results and educational goals, modern science invites us to consider some points. In particular, these are:

- definition of clear goals that motivate the game;
- logical and consistent rules that set limits and frameworks for achieving goals;
- feedback, which helps students to know how they are progressing towards their learning goals, and based on this, they can take the necessary measures to increase the effectiveness of their work;
- voluntary consent to participate in the game and follow the rules established jointly with the teacher [10].

Gamification is not just for fun; it is also an educational approach that can be used to improve the effectiveness of student learning. By applying this methodology for educational purposes, teachers can obtain the following benefits:

1. Increase student engagement and motivation. Game elements such as rewards, points, levels, leader boards, or virtual adventures help students become more actively involved in learning. Thanks to these incentives, they can better perceive complex topics, and learning becomes exciting and less routine.



2. Improved academic performance and achievement. Gamification stimulates students to reach new heights in learning by gradually completing tasks with clearly defined goals. Game scenarios that require completing levels or completing challenges help improve results in control tasks and overall academic performance.

3. Improving memorization and retention of material. Game mechanisms contribute to more active involvement in the learning process, which, in turn, improves the memorization of the material.

4. Providing instant feedback on students' progress and activity. Game platforms often include features that allow you to track student progress in real-time. Instant feedback, such as a message about the correct answer or points received, helps students correct mistakes faster and creates a positive learning experience.

5. The ability to monitor progress independently. Game systems offer features that allow students to analyze their results, track progress, and compare achievements with previous indicators.

6. Development of cooperation skills. Team game tasks stimulate students to interact, exchange ideas, and solve problems. This contributes to developing communication skills, cooperation, and effective group work, which are essential for successful adaptation in modern society [16].

Thus, we can say that games are an effective means of learning; they allow students to intensify their activities during the lesson and immerse themselves in the topic. It is also important to note that game technologies should be used in doses, only as an element of the lesson and when necessary. This is one of the best ways to intensify the educational process and socialize future members of society.

When implemented correctly, a game lesson preserves original learning goals but makes learning more exciting. Gamification is a tool that can create motivation and interest, actually reducing the number of problems that arise in the learning process. Let's consider some examples of gamification that will help increase students' academic performance:

Scoring points for achieving academic goals. Using a scoring system increases students' motivation to perform tasks well. For example, a teacher can create a grading scale encouraging students to formulate full-fledged, reasoned answers. This technique teaches not only to analyze information but also to present their thoughts competently. This can be implemented in literature, history, or science lessons, where facts and evidence are necessary. To encourage students to quote the details of the text and evidence for conclusions during the class discussion, we can propose the following scheme: answers without evidence and facts are evaluated at 1 point, correct



answers with one evidence and facts – at 2 points, correct answer and two evidence and facts – at 3 points. A game like this helps students train critical thinking and argumentative presentation skills and increases their interest in the subject because they feel a direct connection between effort and reward [16].

1. Use of game barriers. The game barriers students offer to overcome allow you to structure the learning process, making it dynamic and exciting. For example, to study tourism, the teacher can create a "task barrier" in which students must solve a series of problems to get the "key to the next level." Barriers may include:

- solving geographical riddles, for example, determining the coordinates of countries.
- creation of mini-projects, such as developing tourist routes indicating historical monuments.
- solving problems using interactive maps.

In this way, students overcome barriers while deepening their knowledge of the subject and developing problem-solving skills.

2. Creating competition in the classroom. Competition motivates students to cooperate, focus on tasks, and take a responsible attitude toward learning. One practical idea is the game "Class vs. Teacher." The teacher introduces a rule that students must follow, such as raising their hands before answering or being active in class. For each implementation of the rule, the class receives points.

In math lessons, this can be turned into a competition: solving examples in the format of "who is faster" while teams compete for bonuses - the right to choose homework or get additional points.

3. Use interactive platforms for instant feedback. Modern digital platforms such as Kahoot!, Quizizz, or Socrative offer interactive quizzes that turn knowledge testing into a fun game. Students receive instant feedback on the correctness of their answers, allowing them to absorb the material quickly and understand their progress. For example, in a biology class, you can create a quest where students answer questions about cell structure or function organisms, receiving points for correct answers.

4. Project work can be gamified for larger tasks, such as creating large projects, using a system of levels, rewards, and bonuses. For example, when making an eco-project, students can receive bonuses for completing task stages, such as collecting information, creating a presentation, or defending a work.

5. Thematic learning missions and avatars: the teacher can involve students by creating characters (avatars) and participating in thematic missions. For example, in a history course, students become "historical detectives" who investigate various historical events by completing missions such as solving codes or searching for "historical witnesses" in source texts [16, p.72-85].



Therefore, improving the motivation and involvement of students in educational activities is an essential lever for activating the educational process and increasing the level of academic performance of students. Scientific studies have revealed great potential for using gamification methods to increase the engagement and success of schoolchildren. Increasing the motivation and involvement of students in educational activities using game technologies is essential for developing their skills and competencies. In the educational process in higher education institutions, various forms of gamification can be used in the classroom and a distance format, particularly on the accessible and effective educational platform Moodle.

Understanding how gamification techniques affect student behavior can help researchers and teachers choose the appropriate methods to work with them. Gamification allows teachers to make learning interactive and engaging no matter what discipline they teach.

Conclusions. Gamification as an innovative pedagogical technology opens up new horizons for organizing an effective educational process based on integrating game elements and motivation mechanisms. The study provides the following generalizations: Gamification originates in motivation theories, which find application in many areas, including education.

Gamification is a pedagogical technology based on the idea that learning should be engaging, structured, and focused on achieving clear goals. Its evolution has gone from application in business and marketing to adaptation in the educational process. Using points, levels, competitions, and rewards, gamification allows educators to create an interactive environment that helps increase students' interest in learning.

The critical factor that ensures the success of gamification is motivation. According to the theories of self-determination, gamification satisfies the basic psychological needs of students: the need for competence is realized through achieving goals and receiving instant feedback, the need for social interaction is satisfied through team games and cooperation, the need for autonomy is supported by the ability to choose the ways to complete tasks independently. This technique stimulates intrinsic motivation, which is more effective and long-lasting than extrinsic motivation. It allows students to feel pleasure from the learning process, not just its outcome.

Research results show that the introduction of gamification into the educational process helps to increase academic performance through an interactive approach to learning that stimulates the development of critical thinking and cognitive skills, improves the memorization of material by repeating information in an exciting game format, increases student engagement through the use of game elements such as rewards, competition, and a progressive



achievement scale; development of communication and social skills, especially when working in groups. The positive results of gamification are manifested not only in improving students' knowledge but also in their emotional and social development, which contributes to the formation of a comprehensively developed personality. Gamification is an effective tool for modernizing the educational process, which meets the challenges of modern society and academic standards. It allows to create an environment that stimulates learning, ensures the development of students' key competencies, and contributes to their motivation for lifelong learning. The use of gamification in higher education institutions is a promising area that requires further research to adapt and optimize this technology to the needs of different categories of students.

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