

ISSN 2518-1467 (Online),
ISSN 1991-3494 (Print)



«ҚАЗАҚСТАН РЕСПУБЛИКАСЫ
ҰЛТТЫҚ ҒЫЛЫМ АКАДЕМИЯСЫ» РҚБ

Х А Б А Р Ш Ы С Ы

ВЕСТНИК

РОО «НАЦИОНАЛЬНОЙ
АКАДЕМИИ НАУК
РЕСПУБЛИКИ КАЗАХСТАН»

THE BULLETIN

OF THE ACADEMY OF SCIENCES
OF THE REPUBLIC OF
KAZAKHSTAN

PUBLISHED SINCE 1944

2 (414)

MARCH – APRIL 2025

ALMATY, NAS RK

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«Қазақстан Республикасы Ұлттық ғылым академиясы РҚБ-нің Хабаршысы».

ISSN 2518-1467 (Online),

ISSN 1991-3494 (Print).

Меншіктенуші: «Қазақстан Республикасының Ұлттық ғылым академиясы» РҚБ (Алматы қ.).

Қазақстан Республикасының Ақпарат және коммуникациялар министрлігінің Ақпарат комитетінде 12.02.2018 ж. берілген № 16895-Ж мерзімдік басылым тіркеуіне қойылу туралы куәлік.

Такырыптық бағыты: *«іргелі ғылым салалары бойынша жаңа жетістіктердің нәтижелерін жариялау»*

Мерзімділігі: жылына 6 рет.

<http://www.bulletin-science.kz/index.php/en/>

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«Вестник РОО «Национальной академии наук Республики Казахстан».

ISSN 2518-1467 (Online),

ISSN 1991-3494 (Print).

Собственник: РОО «Национальная академия наук Республики Казахстан» (г. Алматы).

Свидетельство о постановке на учет периодического печатного издания в Комитете информации Министерства информации и коммуникаций и Республики Казахстан № 16895-Ж, выданное 12.02.2018 г.

Тематическая направленность: «публикация результатов новых достижений в области фундаментальных наук».

Периодичность: 6 раз в год.

<http://www.bulletin-science.kz/index.php/en/>

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Bulletin of the National Academy of Sciences of the Republic of Kazakhstan.

ISSN 2518-1467 (Online),

ISSN 1991-3494 (Print).

Owner: RPA «National Academy of Sciences of the Republic of Kazakhstan» (Almaty).

The certificate of registration of a periodical printed publication in the Committee of information of the Ministry of Information and Communications of the Republic of Kazakhstan **No. 16895-Ж**, issued on 12.02.2018.

Thematic focus: *«publication of the results of new achievements in the field of fundamental sciences»*

Periodicity: 6 times a year.

<http://www.bulletin-science.kz/index.php/en/>

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BULLETIN OF NATIONAL ACADEMY OF SCIENCES
OF THE REPUBLIC OF KAZAKHSTAN
ISSN 1991-3494
Volume 2. Number 414 (2025), 225–239

<https://doi.org/10.32014/2025.2518-1467.923>

IRSTI 14.01.11

UDC 371.311.5

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GAMIFICATION AS ONE OF THE WAYS TO DEVELOP SOFT SKILLS OF HIGH SCHOOL STUDENTS

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Abstract. The most important problem of the study is the correlation between “soft skills” and indicators of learning success, which is significant for the school in high school, as the main thing is to ensure the success of high school students in the main subjects, especially in profile subjects.

The relevance of the study lies in the fact that in the modern era of continuous improvement and rapid development of new pedagogical technologies one of the important problems is the search for more and more effective ways of learning, and the development of soft skills especially in high school. The methods and ways based on interactive game elements, among which gamification seems to be one of the actual ways of development, correspond to the solution of these problems.

The research methods were: aspect analysis of literature on the research topic, questionnaire survey and pedagogical experiment on the basis of complex analysis.

Key hypothesis: the use of gamification technologies in the learning process allows to provide a higher level of development of soft skills and creative thinking of high school students.

Conclusions: the stated hypothesis is confirmed, as modern schoolchildren are interested in game technologies based on gamification, the use of which, in their

opinion, in the course of training sessions have a positive impact on the learning process. The effectiveness of the development of soft skills of high school students when using gamification technologies in the experimental group compared to the control group is higher, and is expressed in the manifestation of greater interest in the learning process, in the increase in the level of development of flexibility, increased level of rapid adaptation to non-standard situations and contexts and so on. It is also noted a significant impact of gamification technologies on the development of creative thinking skills of high school students. It is recommended to use the obtained results in practice in educational schools.

Keywords: gamification, soft skills, creative thinking, high school students, ways of learning.

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ГЕЙМИФИКАЦИЯ ЖОҒАРЫ СЫНЫП ОҚУШЫЛАРЫНЫҢ ЖҰМСАҚ DAҒДЫЛАРДЫ ДАМУТUDЫҢ БІР ЖОЛЫ РЕТІНДЕ

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Аннотация. Зерттеудің маңызды проблемасы – «жұмсақ дағдылар» мен оқу жетістіктерінің көрсеткіштері арасындағы байланыс, бұл орта мектепте мектеп үшін маңызды, өйткені бастысы – жоғары сынып оқушыларының негізгі пәндер бойынша, әсіресе бейіндік пәндер бойынша табыстылығын қамтамасыз ету. Зерттеудің өзектілігі мынада: жаңа педагогикалық технологияларды үнемі жетілдіру мен қарқынды дамытудың қазіргі дәуірінде маңызды мәселелердің бірі-soft skills-ті әсіресе орта мектепте оқыту мен дамытудың тиімді әдістерін іздеу. Бұл мәселелерді шешу интерактивті ойын элементтеріне негізделген әдістер мен тәсілдерге сәйкес келеді, олардың арасында геймификация дамудың өзекті жолдарының бірі болып көрінеді.

Зерттеу әдістері зерттеу тақырыбы бойынша әдебиеттерді аспективті талдау, сауалнама және кешенді талдау негізінде педагогикалық эксперимент болды. Негізгі гипотеза: оқу процесінде геймификация технологияларын қолдану soft skills дамуының жоғары деңгейін және жоғары сынып

оқушыларының шығармашылық ойлауын қамтамасыз етеді. Ұсынылған гипотеза расталады, өйткені қазіргі мектеп оқушылары геймификацияға негізделген ойын технологияларына қызығушылық танытады, оларды оқу сабақтары барысында қолдану оқу процесіне оң әсер етеді деп санайды. Бақылау тобымен салыстырғанда эксперименттік топта геймификация технологияларын пайдаланған кезде жоғары сынып оқушыларының soft skills даму тиімділігі жоғарырақ және оқу процесіне көбірек қызығушылық танытуда, икемділіктің даму деңгейін арттыруда, стандартты емес жағдайлар мен контексттерге жылдам бейімделу деңгейін арттыруда және т.б. көрінеді. Сондай-ақ, геймификация технологияларының жоғары сынып оқушыларының шығармашылық ойлау дағдыларын дамытуға айтарлықтай әсері бар. Алынған нәтижелерді мектептерде тәжірибеде қолдану ұсынылады.

Түйін сөздер: геймификация, жұмсақ дағдылар, шығармашылық ойлау, жоғары сынып оқушылары, оқу тәсілдері.

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ГЕЙМИФИКАЦИЯ КАК ОДИН ИЗ СПОСОБОВ РАЗВИТИЯ SOFT SKILLS У СТАРШЕКЛАССНИКОВ

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Аннотация. Важнейшей проблемой исследования является взаимосвязь мягких навыков (soft skills) и уровня успешности обучения в старших классах, где особенно важно обеспечить высокие результаты по профильным предметам. Актуальность работы обусловлена необходимостью поиска эффективных методов развития мягких навыков в условиях постоянного совершенствования педагогических технологий. Одним из перспективных подходов выступает геймификация, основанная на интерактивных игровых элементах.

Методы исследования: контент-анализ профильной литературы, анкетирование учащихся и педагогический эксперимент с комплексной обработкой данных. Основная гипотеза гласит, что применение технологий геймификации в учебном процессе способствует более высокому уровню

развития мягких навыков и креативного мышления старшеклассников. Результаты эксперимента подтвердили гипотезу: ученики экспериментальной группы проявили повышенный интерес к занятиям, лучше адаптировались к нестандартным ситуациям, продемонстрировали гибкость мышления и улучшили творческие способности по сравнению с контрольной группой.

Практическая значимость заключается в возможности применения разработанных геймификационных приёмов в школе для повышения эффективности обучения и развития ключевых компетенций учащихся.

Ключевые слова: геймификация, мягкие навыки (soft skills), креативное мышление, старшеклассники, интерактивные методы обучения.

Introduction

Rationale for the choice of the topic. The development of soft skills in education and especially their use in high school is conditioned by the fact that the modern world characterized by deep transformations (socio-economic and political) requires new standards of education quality. In this case we can refer to the opinion of Z.A. Saidov, who says that nowadays graduates are valued who are ready and able to adapt to the conditions of the constantly changing world, strive for continuous self-improvement and self-education, cope successfully with multitasking situations, are able to switch from one type of activity to another and realize various work functions. The author points out that such a “set” is largely determined by the complex of required competencies (Saidov, 2022: 2). The importance of developing soft skills (soft skills) of high school students is determined by the fact that soft skills are a significant part of the educational process, which is actively developing in the modern pedagogical environment. Soft skills allow students to develop basic skills (social, communicative, organizational and personal), as they need them in the future for successful activity (life and professional). The importance of soft skills for high school students lies primarily in the fact that they allow them to assert themselves, provide personal growth and give them the opportunity for further professional development. Integration of soft skills into the educational process is considered by both teachers and high school students as one of the important ways to develop their personality. They help to form professional competence in high school students.

The relevance of the study lies in the fact that the most important problem in this issue is the correlation between “soft skills” and indicators of learning success, which is significant for high school, as the main thing is to ensure high school students’ success in basic subjects, especially in profile subjects. In this case, we can refer to the opinion of S. Bari and other researchers, who argues that “soft skills” should be necessarily related to the so-called academic performance (establishes the degree of coincidence of actual and planned results obtained in learning activities (Pazukhina, 2021:11). At the same time, in the era of constant improvement and rapid development of all new pedagogical technologies is also one of the important problems of modern education is the search for more and more effective ways of teaching, including the development of soft skills, which allow teachers to organize

the learning process in high school so that they did not weaken, but increased interest in the lessons and necessarily provide a more successful assimilation of the material studied.

The methods based on game elements meet the solution of these problems. Game methods of teaching are constantly developing. In recent years, gamification seems to be one of the actual ways of pedagogical technology development. Gamification as an educational term becomes known only after 2010 (Sailer, 2019:35). While the use of various interactive game technologies in the learning process has been going on for a relatively long time and we can say quite actively. Richard Bartle, (University of Essex), known as a researcher and designer of computer games, back in 1980 developed the world's first environment for the use of a multiplayer interactive game that had elements of virtual reality (Nand, et al., 2019:15).

The use of computer games in education is applied, but up to now remains a controversial issue, which is confirmed by the fact that in no country gamification is officially regulated and has no defined system. At the same time, in studies conducted systematically, such as Aggun A. Advantages, Kosmas D., Tseklevs E., characterize the advantages and obstacles regarding the use of educational games in training (Tseklevs, et al., 2014:19)

Advantages:

- interactivity and feedback;
- realism and immersion;
- collaborative learning; achievement; motivation and competition.
- The three main conditions for successful use of simulation games in learning

are:

- integration into practical activities;
- educational specificity of the game;
- the presence of a mentor or organizer in the game.

Only under these conditions can games and game technologies be used to support indicators of productive learning (Douglas, et al., 2016:43)

Despite these very real advantages noted during the use of such game technology, the teacher should realize that only games, even if they are especially high-tech, are not enough to ensure the effectiveness of learning, as it is not possible to overcome difficult moments only with the help of games. According to the results of many surveys conducted, there are also results that gamification should be used only as additional techniques to traditional teaching methods in order to expand the teacher's capabilities or as a substitute for a separate part of the curriculum (Overmans, 2015:6)

Under the conditions of the problematic situation regarding the importance and problematic nature of the development of soft skills of high school students and the feasibility of using gamification in the educational process, this particular research topic was chosen.

The purpose of the study is to establish the relationship between the indicators of efficiency of soft skills development in high school students through the use of gamification methods and to determine the impact of gamification on the development of individual soft skills.

Materials and methods

In the first part, the aspect analysis aimed at reviewing some theoretical and practical materials on the research topic was carried out in order to interpret the available material on the designated topic, taking into account possible problems and feasibility of application in practice.

The development of soft skills among high school students is defined in Kazakhstan according to the State obligatory standard of general secondary education, which establishes the importance of the development of certain soft skills. The content of the standard of general secondary education states that in order to achieve basic values, students, especially in high school, should develop: creative and critical thinking; communication and self-improvement of their lifelong learning. And there is also provision for the development of a wide range of skills to support the educational goal (Order of the Minister of Education of the Republic of Kazakhstan, 2022)

Interesting data on the importance of developing soft skills in high school students was identified by the World Economic Forum. Its report shows the top ten soft skills that will be in demand in the labor market and civil society in the near future. The main universal competence was identified as soft skills in the ability to solve complex problems. The second place is occupied by critical thinking skills, and the third place is occupied by creativity. Then come the skills of decision making, persuasion, time management and self-motivation. This report indicates that already today it is necessary to develop soft skills in high school students.

Regarding gamification, we first considered its definition as a method of learning and a way to develop soft skills. There are many definitions of the concept of “gamification”, which allowed us to emphasize their main orientations:

- on the one hand, considered by many scholars and researchers gamification as a method of applying game mechanics and elements in a non-game context in order to increase the target behavior of individuals viewing them and engaging in their audience (Kim, 2020:7; Zainuddin et al., 2020:2; Kalogiannakis, et al., 2020:22).
- on the other hand present gamification as a process of implementing game strategy in some areas of human activity (Shuklin, 2013:2).

In pedagogy or education environment consider gamification quite often as a pedagogical method or tool, by means of which game technologies are introduced into the learning process, which allow, as a result, to form students’ motivation for more successful learning of the study material and in much more active work of students at lessons or other educational activities.

At the same time, the following elements of gamification are distinguished in the educational system:

- game elements, which are a set or set of tools that form the feeling of the game, expressed in points, levels, missions, avatars and some others;
- game creation technologies, which include all the things that structure and put in order the elements of the game, as well as the existence of practical competencies possessed by game designers;
- non-game context, characterized through activities whose purpose is outside the

fragments of the text of the game itself, which allows learners to make game tasks that are combined with other social practices that make them produce actions that lie outside the current game being viewed (Hürsen, 2019:19).

The main idea of gamification is considered to be the introduction of the most active elements into the already established process of educational activities in order to allow changing the established behavior of the audience and attract them to the activities designated by the game (Kim, 2020:7). Some researchers believe that this innovative technology will in the near future have a significant impact on the education system in many countries of the world, especially in developed countries, which will allow them to overcome the observed gap between different generations of teachers and their more modern students (Oblinger, 2004:17; Douglas, 2020:21)

Certainly, considering gamification as one of the active ways of learning in education, including soft skills, both advantages and disadvantages of its use are always noted. These authors also emphasize that only reasonable, appropriate and strategic use of game elements presented by gamification method provides the opportunity to create a learning situation that is caused by a high level of motivation and active participation, which in turn leads to positive results in emotional, cognitive and social areas (Bidzhieva, 2020:10; Abdykerov, 2018:3). The disadvantages of gamification include in education such as:

¾ lowering the importance of the academic subject being taught;

¾ turning the whole educational work into a game (Apostol, 2013).

On the basis of the studied materials we proceeded to the second practical part of the research. Within the framework of which the following methods were used: questionnaire survey and pedagogical experiment.

The main questions of the questionnaire were:

1.Are modern educational technologies applied in your school to a sufficient extent?

2.Do modern technologies positively influence the quality of knowledge acquisition?

3. Is gamification a necessary trend for improving education?

4.Would it be more interesting for you to learn if the teaching process was built through the way of gamification (or games)?

5.Would it be worth spending more time on your studies if gamified computer technology was used in your studies?

6.Have you developed soft skills?

7.Do you need to use more modern gamification technologies to develop soft skills?

In the course of the pedagogical experiment methods of complex analysis aimed at determining the effectiveness of the development of soft skills and creative thinking using gamification technologies were used, a set of tasks with modern game technologies was selected. The study was conducted on the basis of the Secondary General Education School named after Muzafar Alimbayev in the city of Pavlodar, among students of the 10th grade, a total of 28 people, from which two groups

were formed: control and experimental. The experiment was conducted for half a year, gamification technologies were used in the experimental group and traditional teaching methods were used in the control group.

Computerized game exercises were used in the experimental group. All game situations were with specific topics on the subject of study, aimed at the formation of free expression of their own thoughts, at the development of creative thinking and creation of their new ideas. Students of the experimental group used their knowledge for quick search of necessary information, argumentation, skills of quick response and adaptation of different kinds of presented context and some others. Criteria for evaluating the development of soft skills and critical thinking were defined as: motivation; learning efficiency; communication and collaboration; self-regulation; adaptations and analysis.

During the pedagogical research a comprehensive and comparative analysis of the indicators obtained in both groups was carried out, as well as the methods of mathematical statistics were used.

Results and Discussions

The results of theoretical analysis: in modern conditions gamification tools are actively included in the educational system, they are in some cases actively used as a way of learning. They are characterized by both positive characteristics and negative ones. According to many researchers, the decisive factor of success of an educational model using gamification (entertainment or game part of the model) should be considered to be the balance between educational strategy and game stimulus. It is important to understand that the idea of using modern technologies and the Internet as modern ways of learning to create a new educational environment, different from the traditional one, is already realized and becomes in practice a strategic way of learning, which are partially used now and will be used by new generations.

In this part, great challenges are faced by educators who, when using gamification in teaching, knew how to properly integrate technology and games into the learning process, especially in relation to hard skills. At the same time, the inclusion of gamification tools for the development of soft skills of high school students is, in our opinion, inherently more real and more possible.

The results of the questionnaire survey are reflected in Table 1.

Table 1 Results of the questionnaire survey of high school students, in percentages

Indicators	Yes, B %	No, B %
Are modern educational technologies used in your school to a sufficient extent?	42 %	58 %
Does modern technology have a positive impact on the quality of knowledge acquisition?	78 %	22 %
Are you the way gamification is a necessary trend to improve education?	70 %	30 %
Would you be more interested in learning if the teaching process was built through a way of gamification (or gaming)?	88 %	12 %
Is it worth spending more time studying if it's going to involve gaming computer technology?	90 %	10 %

Have you developed soft skills?	42 %	58 %
Do we need to use more modern gamification technologies to develop agile skills?	66 %	34 %

For clarity, these indicators are shown in Figure 1

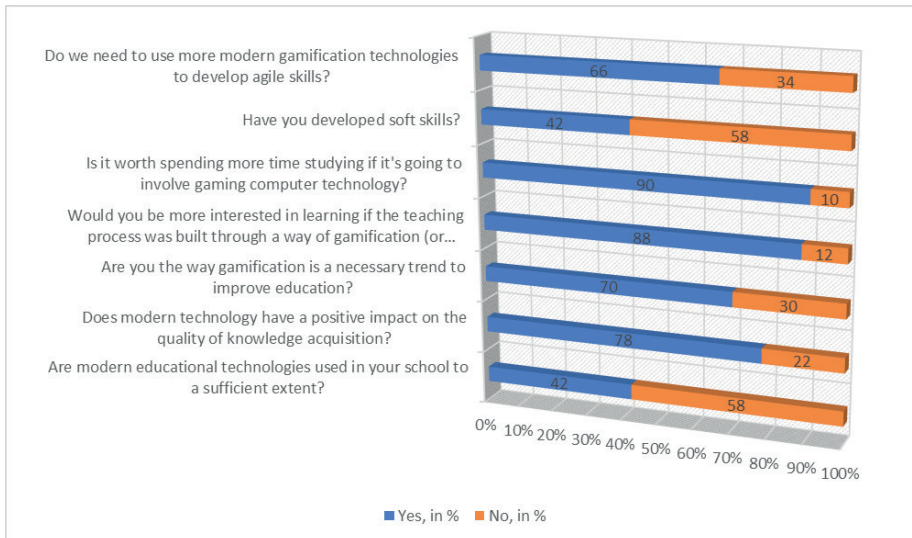


Figure 1 - Comparative analysis of positive and negative responses

The results of determining the effectiveness of soft skills development using gamification technologies are reflected in Table 2.

Evaluation criteria	Experimental group	Control group
Motivation	Showing more interest in the learning process	The usual level of motivation characteristic of traditional learning
Participation rate	Advanced level with elements of soft and creative thinking	Average level of participation
Effectiveness of training	Skills in solving non-standard problems in different situations are noted, indicating a creative approach	Previous level of knowledge and skills
Cullaboration and communication	Development of cooperation and effective communication skills through playful group and team work	Average level of calloboration and communication
Adaptation to new situations	Increased level of rapid adaptation to non-standard situations and contexts	Limited ability to adapt to new situations
Self-regulation and analysis	Conscious approach to learning, developing the ability to analyze one's mistakes and successes	Lack of incentive to more actively self-regulate and analyze their learning

The results of the development of creative thinking from the use of interactive game technologies are reflected in Table 3.

Table 3 Results of comparative analysis of the influence of gamification technologies on the development of creative thinking, in %

Level of development	At the ascertaining stage		In the control phase	
	Experimental group	Control group	Experimental group	Control group
high	36 %	33 %	65 %	40 %
medium	44 %	47 %	25 %	46 %
low	20 %	20 %	10 %	14 %

In the course of analyzing the obtained results, it was found that a greater number (58%) believe that school modern educational technologies are not sufficiently developed. The majority (79%) indicated that modern technologies have a positive impact on the quality of knowledge acquisition. 70% consider the way of gamification as a necessary trend to improve education. In the opinion of 70% it would be more interesting to learn if the teaching process was built through gamification (or games). The majority of students (90%) are ready to spend more time on their studies if they use gamified computer technologies. Only 42% consider themselves to have developed soft skills, as 58% gave a negative answer. According to 66% of high school students express the opinion whether it is necessary to use more modern gamification technologies to develop soft skills, while 34% believe that gamification technologies should not be considered effective.

The results obtained from the questionnaire allow us to agree with the available opinions of other researchers that gamification-based game technologies are interesting for modern high school students. Since many believe that the use of gamification in the course of educational classes affect quite positively on the process of education and learning, as it is the interactive game that makes it more interesting pleasant and exciting.

The comparative analysis of the results of the experimental and control groups to determine the effectiveness of the development of soft skills when using gamification technologies shows that in the experimental group compared to the control group is noted: a greater interest in the learning process; participation activity is characterized by an increased level of development with elements of flexibility and creative thinking; the effectiveness of learning is characterized by good skills in solving non-standard problems in different situations, which is characterized by the use of gamification technologies. While in the control group all these indicators are insignificantly developed. The obtained data of comparative analysis of the influence of gamification technologies on the development of creative thinking skills showed more significant dynamics of creative thinking development in the experimental group compared to the control group. As in the experimental group the high level of creative thinking increased by 29%, and in the control group - only by 7%, and the low level of development decreased in the experimental group - by 10%, and in the control group - only - by 6%.

Some obtained data are confirmed by other studies conducted on similar or indirect problems, for example, in the articles by T.G. Volkova and I.O. Talanova on the peculiarities of using gamification in education, for example, foreign experience

(Volkova, 2022:7) by R.I. Nabieva and G.F. Galmova, on the peculiarities of forming soft communicative skills (Nabieva, 2023) although they have their own special focus.

Conclusion

Aspect literary analysis has shown that the development of soft skills of high school students in Kazakhstan is defined according to the State obligatory standard of general secondary education, which allows the development of soft skills in various ways, including the way of gamification.

In education, gamification is considered as a pedagogical method by which game technologies are introduced into the learning process, which allow students to form motivation for more successful assimilation of the study material and in much more active work of students at lessons or other training sessions.

It is necessary to consider gamification as one of the active ways of learning in the process of education, including soft skills, and both advantages and disadvantages are noted in its use in teaching. It should be emphasized that only reasonable use of game elements presented by the method of gamification provides an opportunity to create a learning situation that will lead to positive results, including the development of soft skills.

It has been established that modern educational technologies are underdeveloped at school, while modern schoolchildren are interested in game technologies based on gamification, the use of which in the course of training sessions has a positive effect on the learning process, as interactive game makes it more interesting pleasant and exciting.

Comparative analysis of the results of the experimental and control groups shows that the effectiveness of the development of soft skills when using gamification technologies in the experimental group compared to the control group, expressed in the manifestation of greater interest in the learning process, increased level of development of flexibility and creative thinking, better skills in solving non-standard problems in different situations, more significant development of cooperation skills and effective communication, increased level of rapid adaptation to non-standard tasks in different situations, increased level of adaptation to the learning process. The influence of gamification technologies on the development of creative thinking skills is noted, as in the experimental group the high level of creative thinking increased by 29%, (in the CG by 7%), and the low level decreased by 10%, (in the CG - by 6%).

The obtained results can be used in further research, as well as recommended for practical consideration and possible use to teachers of educational schools.

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[www: nauka-nanrk.kz](http://www.nauka-nanrk.kz)

ISSN 2518–1467 (Online),

ISSN 1991–3494 (Print)

<http://www.bulletin-science.kz/index.php/en>

Директор отдела издания научных журналов НАН РК *А. Ботанқызы*

Редакторы: *Д.С. Аленов, Ж.Ш. Әден*

Верстка на компьютере *Г.Д. Жадыранова*

Подписано в печать 28.04.2025.

Формат 60x881/8. Бумага офсетная. Печать - ризограф.

40,5 п.л. Заказ 2.