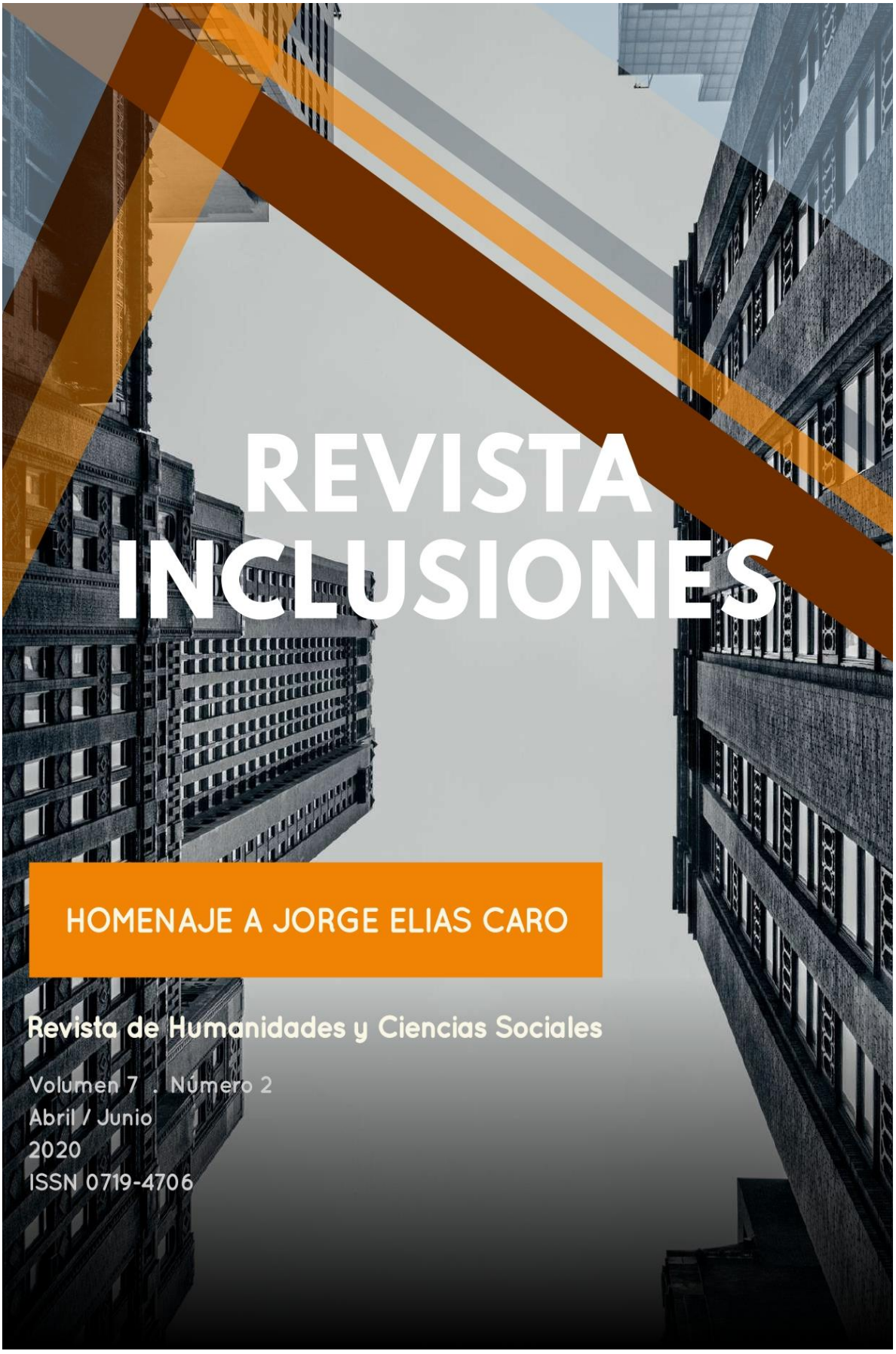

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GAME TECHNOLOGIES IN THE PROCESS OF MASTERING THEORETICAL MUSICAL DISCIPLINES

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Abstract

The purpose of the work is to describe game technologies used in the process of mastering theoretical musical disciplines by students of Russian musical universities and faculties, which are proven the most effective in the course of the study of history and theory of music. The main results of the study state that changing the format of the presentation of information and the preference for interactive forms of teaching and game technologies lead to higher teaching outcomes. The use of game technologies allows modern students to more effectively master theoretical musical disciplines. As representatives of the information society, they experience problems with the development of analytical thinking and learn worse than their predecessors. The novelty of the work is the presentation of the results of the development and practical application of specific game situations, which are proven an effective method of teaching history and theory of music. The main findings of the study: in the conditions of the post-industrial world, the world of total synthesis, globalization, and rapid flow of information, modern people have poorly developed analytical thinking. Game technologies partially solve these problems, allowing students to form competencies that are relevant in modern life.

Keywords

Game technologies – Game forms of teaching – Theory of music – History of music

Para Citar este Artículo:

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Introduction

The problem of training highly qualified musicians is relevant at all times, however, its significance and solutions are changing now. The latest sociocultural, economic, scientific, and methodological trends of the time are reflected in education. The active inclusion of Russia in the global practice of education has determined the specifics of sociocultural processes at the turn of the century, including the need to integrate Russia into the pan-European educational space and the possibility of implementing the equalization system declared in the Bologna Process. The desire to improve the quality of teaching has led to the profiling of each specialty and the revision of methodological principles and pedagogical approaches. In this case, the most important task is the approximation of the educational process to professional activity and the real practice of applying formed competencies.

The processes of globalization, informatization, growth of subcultures, revision of sociocultural values and traditions of the past, diversity of coexisting artistic trends, absence of strict restrictions on creativity, collective activities, individuality of scientific and creative search, active language renewal of all areas of activity, new aesthetic phenomena, existence of different cultures (elite and mass, traditional and innovative), etc. – all this affects the nature of the formation of a new educational paradigm to varying degrees. One of its signs is the use of game technologies that allows modern students to more effectively master theoretical musical disciplines. As representatives of the information society, they experience problems with the development of analytical thinking and learn worse than their predecessors. The novelty of the work is associated with the presentation of the results of the development and practical application of specific game situations, which are proven an effective method of teaching history and theory of music.

When teaching the course of theory and history of musical art, as well as the disciplines of cultural studies and world art studies, teachers are faced with the fact that students do not have the skills of speed reading, taking notes, highlighting the main idea in the text, and using reference materials and encyclopedias. Sometimes students are not able to understand the internal subtexts and other subtleties of a work. In order to improve the situation, attempts to organize additional classes, courses, and scientific and educational clubs are made, where the teacher trains students to analyze and critically assess articles and detailed texts. The lack of interest and ability to memorize music associated with its passive listening as a part of daily routine is compensated by problem tasks offered to students before the process of auditory perception. In addition, a quiz preparation mode that improves this situation is acceptable.

Modular disciplines, mainly practical ones with gradually increasing complexity, are particularly difficult. Thus, skipping one or two links in the chain leads to misunderstanding of subsequent topics and tasks. The solution to this problem lies in the field of teaching methods based on the principle of including retrospective material and solving tasks from the previous sections in order to reiterate learned material and “awake” those students, who for some reason did not master an important topic.

Methods

Due to the fact that modern people as representatives of the post-industrial world, the world of total synthesis, globalization, and rapid flow of information, have poorly developed analytical thinking, the problem of revising methodological approaches to

teaching modern students is examined. A. L. Krainov considers clip thinking as a phenomenon of the information society and, as a consequence, a decrease in the level of critical perception of information and analytical abilities: “A person ceases to think globally and analyze large volumes of important information. The effect of clip thinking is especially clearly visible in the education system, for example, students, who have lost the ability to meaningfully retell a scientific text”[1]. A. A. Konstantinov, N. S. Tarasenko note that in the current situation, “the brain does not try to catch certain information, which makes it difficult for such specialists to analyze, distinguish the essence, and make decisions on that basis”[2]. Due to the need to absorb a lot of information, a representative of the 21st century does not have enough time for its selection and analysis. In addition, the new information generation is not capable of formulating problems and finding solutions to them. The technologies discussed in the article partly solve these problems, allowing students to form competencies that are relevant in modern life.

It is noteworthy that researchers propose such solutions to the problem of developing analytical thinking among representatives of the information society as changing the format of the presentation of information and the preference for interactive forms of teaching and game technologies[3], profiling disciplines[4], as well as increasing the volume of “reading serious books, listening to serious music and conducting serious conversations with smart people”[5]. However, it seems that a solution to the problem of inertia of analytical thinking among young people is in the purposeful formation of the skill of operating with flexible, dialectically developing categories. These categories allow developing a many-valued and changing understanding of musical images and meanings. This overcomes the one-dimensionality of perception of information and human thinking[6].

The problem of the modern student is also the weak motivation to study and lack of volitional qualities, desire to regularly engage in art, and willingness to work hard and purposefully. It is necessary to involve such students in interesting projects, role-play, and problem tasks in order to give them an opportunity to show independence of thinking and decision-making. Scientific articles and major studies of recent years[7] are full of

[1] A. L. Krainov, “Klipovoe myshlenie v kontekste obrazovatelnykh praktik: sotsialno-filosofskii analiz Izvestiia Saratovskogo universiteta. Novaia Seriia”, Seriia: Filosofiia. Psilhologiia. Pedagogika Vol: 19 num 3 (2019): 262.

[2] A. A. Konstantinov y N. S. Tarasenko, “Vliianie informatsionnykh system na formirovanie klipovogo myshleniia u molodezhi”, Aktualnye problemy aviatsii I kosmonavtiki num 3 Vol: 13 (2017): 1118.

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[5] A. A. Konstantinov y N. S. Tarasenko. Vliianie informatsionnykh system na formirovanie…

[6] A. A. Stoian, “Klipovoe myshlenie” cherez prizmu “odnomernogo cheloveka” Gerberta Markuze”, Nauchnyi zhurnal KubGAU Vol: 114 num 10 (2015): 1566–1579.

[7] I. Caponetto; J. Earp y M. Ott, Gamification and education: A literature review (conference paper). Proceeding of the European Conference on Games-based Learning, num 1 (2014); C. Dichev y D. Dicheva, “Gamifying education: what is known, what is believed and what remains uncertain: a critical review”, International Journal of Education Technology in Higher Education Vol: 14 num 1 (2017); P. Mozgaleva; O. Zamyatina; A. Mozgaleva y P. Da Costa Brito Cabral, A metodology for gamifying of the education process (conference paper). IEEE Global Engineering Education Conference EDUCON. 2018 y O.I. Vaganova, “Game technologies in professional education”. International Journal of Innovative Technology and Exploring Engineering num 8 Vol: 12 (2019): 2059.

encouraging conclusions about the effectiveness of innovative teaching methods, including methods of problem-based learning, self-study, game technology, case method, interactive forms of cognitive activity, and the use of electronic educational resources.

Results

At the diagnostic stage of the pedagogical experiment with students of the “Music Education” training program, through pedagogical observation and testing, it was found that students could hardly or could not at all cope with intonational or rhythmic difficulties when writing a dictation by ear. They could not concentrate on the episode, in which there was a special interval structure or rhythmic figure; therefore, they had to stop and repeat the same phrase multiple times. The musicians “stenographed” the dictation, but recorded only the simplest moves, omitting any difficult passages, in which the whole meaning of auditory exercises is laid. The same problem occurred during the process of solmization. Therefore, students lack the concentration of auditory attention, as well as the skill of auditory analysis and separation of particular elements of music in the flow of sound information. Game technologies are precisely aimed at maximum inclusion in the process, focusing on every moment, and developing analytical skills and critical assessment of a situation.

During practical exercises of the “Solfeggio” module, the game “Find an Error” is used. A teacher divides a group of students into two subgroups and gives each group sheet music with a one-voice dictation with some kind of melodic or rhythmic difficulties (in accordance with the studied section). Then students of each group agree to change some fragments of the dictation and play the piano (or sing in unison) a one-voice melody, deliberately making mistakes (play the wrong sound than one recorded in the notes, wrong duration, wrong octave, etc.). Students of the other group follow the notes and listen carefully to the one-voice melody, looking for discrepancies between the musical notation and the sounding melody. When each “mistake” is detected, students signal or mark the beat with an error. Then the students of the first group repeat the melody and the students of the second group fully record the version of the dictation. Upon completion of the recording, the players play the instruments or sing the resulting melody in unison. Then the groups change places: the second group voices the melody with errors and the first finds them and records the one-voice number the way the first one performed it.

The skills and abilities formed by the proposed game technology in the practical classes of the “Theoretical Musical Disciplines” are:

Skills: to carry out the selection of educational content for implementation in various forms of teaching the subject area of musical education and upbringing in accordance with the didactic goals and age characteristics of students;

Abilities: possession of subject content of music art and education; skills of selection of variable content, taking into account the relationship between the curricular and extracurricular forms of teaching the subject area of musical education and upbringing.

The game participants are evaluated according to the following criteria (for each criterion, a participant receives one point):

1. Changing the original motif of a one-voice melody with the use of melodic and rhythmic difficulties and characteristic melodic moves, for example, scale-wise or according to the sounds of triads, diatonic or chromatic, and rhythmic patterns, including syncopation, dotted rhythm, or special division of durations – triplets and quintuplets (application of these elements indicates the mastering of theoretical and practical material of the previous topics of the module);

2. Reproduction of the musical number using an instrument or voice, which is correct in terms of pitch and intonation during the performance (correct intonation indicates the acquisition of practical skills that are the aim of studying this discipline);

3. Determination of intentional errors by ear during the performance of a one-voice melody (developed musical ear indicates the acquisition of practical skills that are the aim of studying this discipline);

4. Correct musical notation of a melody with intentional errors in the performance of participants in a group of rivals (the ability to correctly record the dictation heard indicates the acquisition of practical skills and abilities that are the aim of studying this discipline);

5. Reproduction of a musical number using an instrument or voice, which is correct in terms of pitch and intonation, the way it is performed by a group of rivals (correct intonation indicates the acquisition of practical skills that are the aim of studying this discipline).

At the end of the game, the points are summed up and the best participant in the game, the most attentive “listener” is selected by voting method within each group.

Another game, which is used in practical classes, is called “It exists – it doesn’t exist”. The teacher divides students into two groups and instructs each of them to compose and perform a melody of a certain style (folk, academic opera, or pop). It is necessary to include foreign-style elements – a characteristic rhythm (for example, a syncopation from ragtime in folk tunes), intonations (blues notes to a melody in the style of an opera aria), etc. The other group listens to the singing of a member of the first group and tries to identify the foreign style element by ear. After the eightfold performance of the composed melody, the participants of the first group perform it by heart. Then the second group also plays the composed melody and the first one guesses whether something exists in the melody of a given style or not.

In this game, the participants are evaluated according to the following criteria (for each criterion, a participant receives one point):

1. Use during the composition of the correct elements of a particular style – folk, academic, or pop (the use of these elements indicates the mastering of theoretical and practical material of the previous topics of the module);

2. Correct reproduction of a composed melody using an instrument or voice in terms of pitch and intonation (correct intonation indicates the acquisition of practical skills and abilities that are the aim of studying this discipline);

3. Determination by ear of a common style of a melody when performing a one-voice melody (developed musical ear indicates the acquisition of practical skills that are the aim of studying this discipline);

4. Determination by ear of foreign-style song elements of a melody when performing a one-voice melody (developed musical ear indicates the acquisition of practical skills and abilities that are the aim of studying this discipline);

5. Correct reproduction of a composed melody by heart or voice in terms of pitch and intonation (correct intonation indicates the acquisition of practical skills and abilities that are the aim of studying theoretical musical disciplines).

At the end of the game, the points are added up and the best participant in the game is selected by voting method within each group. This type of game activity contributes to the formation of the skill of analyzing the source material, assessing it from the point of view of style features, practical application of the knowledge gained, and acquisition of skills in musical and creative activities.

In addition, the “Classification” game is offered to students during the study of modern compositional techniques and new types of notation. During a practical lesson, students are divided into two groups and each of them is given fragments from musical scores of different eras and styles (from Renaissance scores to modern verbal-graphic scores). Students should group fragments of music scores from different centuries as quickly as possible according to composition styles and techniques: baroque, classicism, romanticism, impressionism, neo-folklorism, neoclassicism, modern, serial, aleatory, sonorous, repetitive music, polystylistics, graphic music, instrumental theater, happening, etc. Participants receive points for each fragment of the score correctly distributed among the groups; the winning group is determined by the highest number of points received. In offline and online mode, the faster and more correctly each student sorts fragments of musical scores into groups, the higher the score. According to the results of the game (which can be carried out in a time test mode), the student who in the shortest possible time correctly performs with the task is determined.

Discussion

At the end of the pedagogical experiment, a control test was carried out – repeated testing and observation of student musicians during the performance of auditory exercises and tasks on history and theory of music. It was found that students paid more attention to details, listened and analyzed musical phrases from the point of view of their specificity, compared some melodic or rhythmic elements with others, and differentiated similar and different. Students began to show the ability to reproduce (sing from memory) most of the dictation, including measures with intonational and rhythmic difficulties that had not previously been left in memory due to the low level of critical perception of information and analytical abilities. During the game, the brain tries to catch certain information, solve the existing problem, and find a way out in the proposed circumstances. As a result, the student acquires the skill of critical perception and analysis of information, overcoming clip thinking and one-dimensional attitude to what is happening.

When comparing the results of this study with international experience and the research of foreign colleagues, the following becomes obvious: game technologies are only being introduced into the training programs of musicians and have not yet been

evaluated in terms of their effectiveness in music education. Scholars note the positive impact of game technology on the learning process but do not offer specific development of educational games for musicians that have been tested in practice. Therefore, the group of authors of the article "A methodology for gamifying of the educational process" have "designed, proposed, tested, and partially research a methodology for the gamification of academic disciplines through the example of the Elite Engineering Education"[8]. I. Caponetto, J. Earp, and M. Ott, performing a literature review on gamification and education, note that "recently the term was used by many to denote the adoption of game artifacts (especially digital ones) as educational tools for learning a specific subject such as algebra"[9]. The authors of the study of the possibilities of activity technologies within the framework of electronic education argue that "the statement of the educational task is formulated in the form of a system of actions, determining the direction of activity so that students can consciously conduct reflections and achieve the planned results"[10].

K.V. McAlpine studies the influence of video game technologies (KIDI and BitBox!) on the enactive learning of music and makes a conclusion that "both case studies highlight the importance of play as a vehicle for learning"[11]. C. Dichev and D. Dicheva emphasize that "with the growing popularity of gamification and yet mixed success of its application in educational contexts, their review sheds a more realistic light on the research in this field". The authors conclude that "evidence exists to support the long-term benefits of gamification in educational contexts; the practice of gamifying learning has outpaced researchers' understanding of its mechanisms and methods; the knowledge of how to gamify an activity in accordance with the specifies of the educational context is still limited"[12].

O.I. Vaganova considers the possibilities of the formation of competencies of future teachers of vocational training. Although she explores the process of applying "business games taking into account the specifics of 'Labor Law' and 'Civil Law'", that "allows improving the process of formation of competencies of future teachers of vocational training"[13]. Full-fledged studies of the use of game technologies in the mastering of theoretical musical disciplines, which are specialized and most difficult to study, have not yet been conducted. S.N. Kelly and K. Veronee consider the meaning of music theory in studying courses of nontraditional music by students as having musical value. It is precisely theoretical musical disciplines that create the basis for the professional skill of musicians and the conditions for the formation of general and special professional competencies of specialists in this field.

This work partly fills this gap, since it describes specific games that have been used in pedagogical practice for more than one year and have shown their effectiveness, as evidenced by the results of diagnostics and verification of the results of the application of the developed game technologies. As is well known, all new and modern is the well-forgotten old, only considered from a new angle. In most cases, modern technologies are

[8] P. Mozgaleva; O. Zamyatina; A. Mozgaleva y P. Da Costa Brito Cabral, A metodology for… 289.
[9] I. Caponetto; J. Earp y M. Ott, Gamification and education… 50.
[10] M. N. Bulaeva; O. I. Vaganova y M. N. Gladkova, "Activity technologies in a professional educational institution", Baltic Humanitarian Journal Vol: 7 num 3 (2018): 167.
[11] K. B. McAlpine, Shake and create: Reappropriating video game technologies for the enactive learning of music. Serious Games and Edutsinment Applications II (2017): 77.
[12] C. Dichev y D. Dicheva, "Gamifying education: what is known… 119.
[13] O. I. Vaganova, "Game technologies in professional education", International Journal of Innovative Technology and Exploring Engineering num 8 Vol: 12 (2019): 2059.

used in various combinations and complement each other. Without the professional skill of the teacher, no technology will bring expected results. However, the gamification of the educational process and the introduction of game elements into the development of theoretical musical disciplines by modern students motivates them to gain new knowledge, develop their competencies, and, as a result, improve a university graduate's knowledge and skill levels.

Conclusion

In modern Russian universities, the following pedagogical technologies are used: pedagogy of cooperation, game technology, problem-based learning, communicative and collective learning, programming and differentiated learning, personal approach, forward-looking learning, collective and group forms, theory of phased formation of mental actions, technologies of self-development and self-education, etc. The game technologies used in the study of history and theory of music at the Russian State Social University provide a high level of development of analytical thinking and the formation of professional competencies of musicians. The purposeful formation of analytical thinking is provided by game technologies, which in Russia are only beginning to be applied in the development of theoretical musical disciplines that have their own specifics.

The results of the study allow us to conclude about the effectiveness of the application of the described game situations in the study of theoretical musical disciplines. The main results of the study state that changing the format of the presentation of information and the preference for interactive forms of teaching and game technologies lead to higher teaching outcomes. The use of game technologies allows modern students to more effectively master theoretical musical disciplines. As representatives of the information society, they experience problems with the development of analytical thinking and learn worse than their predecessors.

The significance of the conclusions in relation to previous studies is that the specific game situations developed by us and tested in pedagogical practice, the effectiveness of which has been proved during the training of students in history and theory of music, can be used in the educational process, including distance learning. The described task games can serve as the basis for further research on new teaching methods for student musicians.

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