

Arkhipova N., <sup>1\*</sup>  Abeltayeva Zh. <sup>1</sup> 

<sup>1</sup>Temirbek Zhurgenov Kazakh National Academy of Arts, Almaty, Kazakhstan

## POSSIBILITIES OF PROBLEM-BASED LEARNING IN THE PRACTICE OF HIGHER MUSIC EDUCATION

### Abstract

The study is devoted to the problem of activating the cognitive activity of students of performing arts at an art university. The subject of the study is the modern Problem-Based Learning pedagogical technology, which is actively used in many areas of vocational education. This work examines the possibilities of using PBL in the practice of studying the *Piano* discipline. According to the authors, adapting PBL ideas to musical performance practice at the stage of university education significantly increases the level of development of professional competencies. Moving away from the traditional teaching format, where all musical-performing problems are solved by the method of demonstration and reproduction, to the use of Problem-Based Learning educational technology can become a powerful dynamic factor in overcoming the inertia of creative processes and, thereby, forming a stable motivation in the student to achieve success in instrumental performance. Moreover, the PBL strategy, which directs the mental activity of students to an independent search for ways of professional improvement, lays a solid foundation of competence in the chosen profession and beyond the walls of the classroom. The effectiveness of PBL implementation was tested using a training experiment, during which a three-level system of methodological approaches was developed. Particular focus is made on describing examples of the practical application of PBL methods, in the context of various stages of mastering the musical instrument. An analysis of the results of teachers' work using elements of problem-based learning was performed, and the effectiveness of its use in piano pedagogy was substantiated.

**Keywords:** musical educational process, problem-based learning, musical performance problems, cognitive activity, creative thinking, professional skills.

Н.В.Архипова, <sup>1\*</sup> Ж.Е.Абельтаева <sup>1</sup>

<sup>1</sup>Темірбек Жүргенов атындағы Қазақ ұлттық өнер академиясы, Алматы қ., Қазақстан

## ЖОҒАРЫ МУЗЫКАЛЫҚ БІЛІМ БЕРУ ТӘЖІРИБЕСİNДЕ ПРОБЛЕМАЛЫҚ-БАҒДАРЛАНҒАН ОҚЫТУ МҮМКІНДІКТЕРІ

### Аңдатпа

Зерттеу өнер университетіндегі орындаушылық өнер мамандығы студенттерінің танымдық белсенділігін арттыру мәселесіне арналған. Зерттеу пәні кәсіптік білім берудің көптеген салаларында белсенді түрде қолданылатын Problem-Based Learning заманауи педагогикалық технологиясы болып табылады. Жұмыста «Фортепиано» пәнін оқу тәжірибесінде PBL қолдану мүмкіндіктері қарастырылады. Авторлардың пікірінше, университеттік білім беру кезеңінде PBL идеяларын музыкалық орындаушылық тәжірибеге бейімдеу кәсіби құзыреттіліктердің даму деңгейін айтарлықтай арттырады. Музыкалық-орындаушылық мәселелердің барлығы демонстрациялық және репродуктивтік жаңғырту әдісімен шешілетін дәстүрлі оқыту форматынан алшақтап, Problem-Based Learning білім беру технологиясын пайдалануға көшу шығармашылық үдерістердің инерциясын жеңудің қуатты динамикалық факторына айналуы мүмкін, сол арқылы студенттің аспаптық орындауда жетістікке жетуіне тұрақты мотивацияны қалыптастыруға болады. Сонымен қатар, студенттердің психикалық белсенділігін кәсіби жетілдіру жолдарын өз бетінше ізденуге бағыттайтын PBL стратегиясы таңдаған мамандығы бойынша және оқу аудиториясынан тыс жерде құзыреттіліктердің берік негізін қалайды. PBL енгізудің тиімділігі оқу экспериментінің көмегімен тексерілді, оның барысында әдістемелік тәсілдердің үш деңгейлі жүйесі әзірленді. Құралды меңгерудің әртүрлі кезеңдері контекстінде PBL әдістерін тәжірибеде қолдану мысалдарын сипаттауға ерекше назар аударылады. Проблемалық оқыту элементтерін қолдану арқылы ұстаздар жұмысының нәтижелеріне талдау жүргізіліп, оны фортепиано педагогикасында қолданудың тиімділігі дәлелденді.

**Түйін сөздер:** музыкалық оқу үдерісі, проблемалық-бағдарлық оқыту, музыкалық-орындаушылық мәселелер, танымдық белсенділік, шығармашылық ойлау, кәсіби құзыреттіліктер.

Архипова Н.В.,<sup>1\*</sup> Абельтаева Ж.Е.<sup>1</sup>

<sup>1</sup>Казахская национальная академия искусств им. Темирбека Жургенова  
г. Алматы, Казахстан

## ВОЗМОЖНОСТИ ПРОБЛЕМНО-ОРИЕНТИРОВАННОГО ОБУЧЕНИЯ В ПРАКТИКЕ ВЫСШЕГО МУЗЫКАЛЬНОГО ОБРАЗОВАНИЯ

### Аннотация

Исследование посвящено проблеме активизации познавательной деятельности студентов исполнительских специальностей вуза искусств. Предметом исследования является современная педагогическая технология Problem-Based Learning, активно используемая во многих областях профессионального образования. В работе рассматриваются возможности применения PBL в практике изучения дисциплины «Фортепиано». По мнению авторов, адаптация идей PBL к музыкально-исполнительской практике на этапе вузовского обучения значительно повышает уровень сформированности профессиональных компетенций. Уход от традиционного формата обучения, где все музыкально-исполнительские проблемы решаются методом показа и репродуктивного воспроизведения к использованию образовательной технологии Problem-Based Learning может стать мощным динамическим фактором преодоления инертности творческих процессов и, тем самым, сформировать у студента устойчивую мотивацию к достижению успеха в инструментальном исполнительстве. Более того, стратегия PBL, направляющая мыслительную деятельность обучающихся на самостоятельный поиск путей профессионального совершенствования, закладывает прочный фундамент компетентности в выбранной профессии и за стенами учебной аудитории. Эффективность реализации PBL была проверена методом обучающего эксперимента, в ходе которого разработана трёхуровневая система методических подходов. Особое внимание уделено описанию примеров применения методов PBL на практике, в контексте различных этапов освоения инструмента. Проведён анализ результатов работы преподавателей с использованием элементов проблемно-ориентированного обучения и обоснована эффективность его применения в фортепианной педагогике.

**Ключевые слова:** музыкально-образовательный процесс, проблемно-ориентированное обучение, музыкально-исполнительские проблемы, познавательная активность, творческое мышление, профессиональные компетенции.

**Introduction.** “We deprive children of the future if we continue to teach today the way we taught it yesterday” – this statement by John Dewey, a famous American philosopher and educator of the 20<sup>th</sup> century, is especially relevant in the 21<sup>st</sup> century, which is rightly called “the century of innovation in the learning environment” [1, p.72]. Clearly, traditional piano pedagogy, based on the richest centuries-old practical experience, is extremely valuable and productive. But in the context of a change in the educational paradigm, it is not fully capable of solving the problem of professional competence of the future pop musician. Indeed, from the point of view of the traditional methodology of teaching piano, the teacher is the only proactive person, and the main methods of work are the verbal presentation of ready-made knowledge, demonstration and endless reproduction. “Constant tense and hasty preparation for the next test, working from “show” to “show” leads to the fact that the teacher deprives the student of independence and takes on the work that they must do on their own. As a result, their own initiative dies out and is replaced by the teacher’s intentions”, writes the well-known Soviet pianist and teacher, M.N.Barinova [2, p. 112].

Ultimately, a student acquires a certain amount of knowledge, skills and abilities, but is not always able to address professional problems that arise in *real-life situations* of their performing and teaching activities. How to minimize the sameness and monotony of the educational process? How to intensify a student’s cognitive activity and increase the level of conscious attitude towards acquiring professional knowledge? And finally, how can a student develop sustainable motivation to achieve success and competence in piano performance?

The search for ways to solve these problems led to the study of modern educational technologies, and one of them – Problem-Based Learning – became the focus of our research. Its authors are a professor at the Faculty of Medicine at McMaster University (Hamilton, Canada), the famous research scientist, Howard Burrows, and his colleague Robin Tamblyn. The scientific ideas

of Burrows and Tamblyn have aroused great interest throughout the world, and the PBL pedagogical strategy is actively used in all areas of vocational education.

An attempt to consider the application of ideas and methods of problem-based teaching in practical piano pedagogy and to prove the effectiveness of their integration into the classical system of training future pop musicians determines the *relevance* of the study.

The *purpose of the work* is to identify the possibilities of problem-based learning in the practice of music education when studying the “Piano” discipline.

To achieve this goal, two specific *tasks* are proposed, namely:

- identify the contribution made by the use of PBL to the process of practical knowledge in the piano classroom;
- describe students' participation in the active experience of introducing new technology.

The *object* of the study is the musical educational process aimed at the formation and development of the personality of a future professional musician. Elements of problem-based learning in the process of mastering piano music by music university students are considered as a *subject* of research.

In our opinion, the study has undoubted theoretical and practical significance. The *theoretical significance* of the study lies in the systematization and generalization of modern scientific data, on the basis of which a methodology has been developed aimed at significantly increasing the level of development of professional competencies. *Practical relevance*: the materials obtained during the educational experiment can be used in music performance classes to develop independent creative thinking among future professional musicians.

*Basic provisions.* 1. There is a constant need for regular updating of learning approaches that contribute to the activation of cognitive activity of university students.

2. Among the many different approaches in this regard, one can single out a Problem-based Learning, which is very promising for creative professions.

3. In order to prove the effectiveness of the Problem-based Learning in relation to piano pedagogy, a pedagogical experiment was conducted with the participation of university students.

**Materials and methods.** An integrated approach to the subject of research predetermined the variety of *methods* used:

- *content analysis* of existing scientific ideas about problem-based learning;
- *comparative analysis* of traditional methods of teaching piano with the concept of problem-based learning;
- *educational experiment*: introducing elements of problem-based learning into the practice of teaching piano;
- *empirical methods* (pedagogical observations, interviews).

The *methodological basis* of the study was the fundamental principles of piano pedagogy, history and theory of performance, set out in the works of B. Asafiev [3], A. Alexeev [4], L. Barenboim [5], a monograph by the leading Kazakh music scholar, U. R. Dzhumakova [6].

A major part in the development of the problem-based learning theory was played by the achievements of teachers/researchers from the USA and Great Britain (J. Dewey [1], Barrows H. [7], Savin-Baden M. [8], Newman M.J. [9]), Poland (V. Okon [10]), Russia (M.I. Makhmutov [11], E.V. Kovalevskaya [12], V.N. Petrova [13]), Kazakhstan (S.T. Nurtazin, Zh.M. Bazarbaeva, Z.B. Esimsiitova, D.K. Ermekbaeva [14]). The principles of problem-based learning were also developed by the leading psychologists, S.L. Rubinstein, D.N. Bogoyavlensky, N.A. Mechinskaya, and A.M. Matyushkin [15]. In the last two decades, attention to the technology of problem-based learning has also been observed in music pedagogy [16, 17, 18, 19, 20]. However, the use of PBL methods in music pedagogy still does not have a deep scientific and practical basis.

**Results.** So, what is problem-based learning and what are its theoretical foundations?

G. Barrows defines the essence of his method as follows: “Problem-based learning is learning that is the result of a process of working towards understanding the solution to a problem” [7, c.18].

A more detailed definition of PBL is given by Academician of the New York Academy of Sciences M.I.Makhmutov: “Problem-based learning is a type of developmental education that combines systematic independent search activity of students with the assimilation or ready-made conclusions of science, and the system of methods is built taking into account goal setting and principle problematic; the process of interaction between teaching and learning is focused on the formation of students’ cognitive independence, stability of learning motives and mental (including creative) abilities in the course of their assimilation of scientific concepts and methods of activity, determined by a system of problem situations” [11, p. 31]. Thus, PBL can be conceptualized as an active, student-centered method that allows one to simulate real complications, and thereby prepares them for real professional life.

The essence of problem-based learning technology is that the student is placed in the position of a “discoverer”, “researcher” in different situations. When turning to problem-based learning, the teacher does not convey knowledge in a “ready-made form”, but sets problematic tasks for the student and encourages them to look for ways and means to solve them. Here the problem itself “paves the way” to new knowledge and methods of action, and not vice versa. The fact that new knowledge is introduced not for the sake of obtaining the next piece of information, but for the sake of solving a problem, is fundamentally important. Moreover, this active learning technology changes the “status quo” of the traditional classroom – first it puts the teacher in the role of a mediator of knowledge construction, and then “brings students to the center of the educational process, and makes them responsible for their own learning” [9, p. 15].

Problem-based learning poses the following tasks:

- development of thinking and abilities, development of creative skills;
- assimilation of knowledge and skills acquired during active search and independent problem solving;
- bringing up an active, creative personality who can see and solve non-standard professional problems.

It is obvious that the PBL strategy is in many ways similar to piano pedagogy. Firstly, we have an individual form of classes, which involves a student-oriented approach and active teacher-student interaction. Secondly, the process itself plays a big part in learning to play the piano – it is built as a continuous development of creative thinking, as a result of which practical skills are accumulated. The use of PBL technology elements activates the cognitive independence of students and stimulates their own initiative. As a result, instead of passive assimilation of knowledge and skills, there is an active search, the level of conscious attitude towards the acquisition of professional knowledge, skills and personal qualities of a future professional musician increases.

Question: where to start with problem-based learning? We find the answer in the statements of Professor H. Barrows: “The problem is the first element of the learning process” [7, p. 25].

Therefore, the first step in the action algorithm is to *create a problem situation*. Psychology defines this phenomenon as follows: “A problem situation is the mental state of a person experiencing cognitive difficulty it is a contradiction that appears in the form of a question asked to oneself” [15, p. 48]. A problematic situation is an indispensable condition, a kind of “trigger mechanism” for creative thinking. As soon as a problematic situation arises, the thinking necessary to understand the essence, meaning of the difficulty and contradiction is activated. The problematic situation in this case already turns into a conscious mental task, a problem. It should be noted that the piano teacher does not have to artificially simulate a problem situation. The musical text of any piece of music at various stages of its development in one way or another contains various performance problems – meter-rhythmical, motor, fingering, articulatory, phrasing, etc. In this context, the thesis seems convincing: “A piece of music is always a “book not fully read.” It represents the “territory of meanings,” the substance in which both the consciousness and the unconscious of the individual are embodied” [17, p. 193]. It is necessary to take into account that

the problem situation must be accessible to a student and correspond to the level of their performance capabilities. To do this, the teacher must be very careful in choosing a particular piece.

The next step would be to determine the *nature of the problem*. A teacher asks the student to evaluate their performance and indicate textual and technical inaccuracies in playing. Joint analytical work between the teacher and the student begins, during which the essence of the difficulty is realized and skill deficiencies that cause poor performance are identified. The thinking necessary to understand the essence of the difficulty is activated. The main task of the teacher at this stage, according to Kazakh scientists, is “appealing to the students’ logic, a targeted correction of the movement towards a method of solving the problem being developed” [14, p. 113].

Next, the *search for a solution to the problem* begins. “The learning benefit that comes from solving a problem is much greater than simply memorizing ready-made information”, says Polish didactician, V. Okon [10, p. 67]. The student either carries out a mental search on their own, or with the help of a teacher, through creative dialogue. It is important to note that not all students are ready for such analytical activity due to individual personal qualities, as well as the level of performing training.

The final stage in the action algorithm should certainly be *consolidation of the acquired skills*. This can be done using the traditional reproductive approach, as well as by studying works with similar technical or artistic problems.

The main conditions for the success of problem-based learning are the student’s interest in the content of the problem, the feasibility of working with emerging problems, and the positive attitude of the teacher towards the free thought process of their student.

**Discussion.** The effectiveness of PBL implementation was tested using a *pedagogical experiment*. The object of observation was the learning process of 1<sup>st</sup>-2<sup>nd</sup> year students of the Faculty of Musical Art of Temirbek Zhurgenov Kazakh National Academy of Arts. As material for practical work in the class, we selected piano pieces by composers from Kazakhstan.

Piano music by Kazakh authors is a unique artistic phenomenon, representing a huge array of pieces of music of large and small forms with a special figurative structure, unique modal, meter-rhythmic, and textured means. Pieces by composers of Kazakhstan are the most important component of the repertoire policy of the “Compulsory Piano” discipline at all stages of learning.

They are not only able to form a professional base for musical performing skills, but also to develop musical thinking based on national images and national aesthetics. It is important to note that Kazakh piano creativity dates back to the 20<sup>th</sup>-21<sup>st</sup> centuries – an era of gigantic evolution in musical thinking, changes in the interpretation of the sound and expressive capabilities of the piano, a variety of implementation in plays of various styles, composition techniques – from the continuation of the classical-romantic style to the avant-garde. Composers of Kazakhstan boldly introduce unique techniques into the performing arsenal, which reveal completely new facets of the instrumental-phonic (pianistic) content of the piano and no less boldly synthesize elements of the academic style with the jazz and pop music techniques. It is obvious that such a variety of implementation in the music pieces of Kazakhstan’s composers of various styles and compositional techniques requires a significant increase in the level of professional competencies – mastery of the skills of reading and performing modern musical notation, a diverse sound palette, bowing, and other “tools” of interpretation necessary for meaningful and expressive performance. The music of modern Kazakh composers is relevant not only in the learning process, but it will remain in the repertoire throughout the entire creative activity of the pop artist. Therefore, we can confidently say that the PBL method prepares students for “real life” and teaches them to independently cope with various performance problems.

During the experiment, a three-level system of methodological approaches was developed (classification by M.I.Makhmutov [11]). The choice of one approach or another was purely customized, and determined by the degree of independence of the student’s thinking in determining the essence of the problem and resolving the problem situation:

1. Level of normal activity – *problem presentation method*. This is the simplest approach in the context of PBL. It can be used in the initial stages of learning to play the piano. The essence of the method is that the teacher, during the lesson, identifies and formulates the problem (rhythmic, fingering inaccuracies, lack of hand coordination, etc.), justifies the solution to this problem and, using the method of artistic performance of the “problem” fragment, proves the effectiveness of the chosen method of problem-solving. Although, the role of the student in this case is passive, they remember the line of thought and the algorithm of actions to solve this performance problem. Let's consider an example: working on the play “*Kozimnin karasy*” (*Abai's song arranged by A. Sagat*).

This lyrical miniature with a pronounced national character is very popular among beginning students. The texture of the piece represents the relationship of two layers – a board cantabile melody in the right hand and an accompaniment in the left hand that supports this melody. The accompaniment is presented in the form of harmonious figuration.

During the performance, a 1<sup>st</sup> year student had a problem – she played the accompaniment loudly, with a tense hand and a jerky stroke. The teacher asked her to evaluate her performance. The girl realized that her performance was incorrect, but, due to insufficient performing experience, she was unable to articulate the problem herself (she simply said, “I can't do it”). Instead of a ready-made “recipe” in the form of a demonstration, joint analytical work began, during which the teacher revealed to the student the essence of the challenge, and skill deficiencies that caused poor performance, namely, a low wrist, incorrect fingering, and tense hand. The student's understanding of the essence of the problem and the teacher's voicing of ways to solve it, together with demonstration on the piano, helped to achieve a successful result. And although the student was assigned a passive role in this situation, she realized what the problem was, and gained experience in solving it. Later, when performing A. Abdinurov's piece, “Tugan Zher”, with a similar texture, the girl herself successfully coped with the performing task.

2. The level of semi-independent (productive) activity is *the method of heuristic dialogue*. A distinctive feature of this teaching method is that the student independently determines the essence of the problem and attempts to find its solution. However, the search for the right solution does not occur on its own, but under the guidance of a teacher who creates an atmosphere of creative cooperation, gives recommendations and thereby leads students to “discovery,” which gives them creative joy and stimulates their cognitive activity. The use of the heuristic dialogue method is possible provided that the student has high cognitive abilities, the ability to generalize accumulated knowledge and their own performing experience.

Example 2. Work on A. Nuralieva's piece “Ozen”.

An impressionistic musical “picture” with elements of sound representation. Its texture, just like in the above example, is homophonic-harmonic (melody in the right-hand part and accompaniment in the form of harmonic figuration in the left). A second-year student who knows basic playing techniques was able to formulate her own performance problem – the difficulty was in the legate performance of a melody duplicated in thirds and sixths. Playing thirds and sixths is a rather complex technique that requires the performer to have a flexible wrist, muscle liberty, finger activity and correct fingering. To solve this problematic situation, the teacher recommended preparatory exercises to the student – playing scales with double thirds in the most convenient version of the fingering of the German teacher, P. Pabst. After working through these exercises, the technical difficulties in the “Ozen” piece of music had been overcome.

3. Level of creative activity – *research method*. One cannot but agree with the opinion of Russian scientists and musicians, “The research method,” they say, “is the most complex and the most “adult” of the problematic methods. It assumes that the student is already able to independently identify and resolve the musical-performing problem, and only needs the overall guidance of their activities from the teacher. This method is only appropriate at the final stage of study at a university, as well as in postgraduate education” [15, p.9].

Example 3. Work on A. Bestybaev's play “Scherzo”.

This is a bright, detailed, virtuosic concert piece. The author boldly synthesizes in it the tone quality and sound properties of the dombra *kyui-tokpe*, forming a “layer of national sound” (U. Dzhumakova [6]), expressed in dynamic aspiration, motor skills, ostinatic rhythmic pattern, modal modality, culmination in the high register (saga), with the idiomatic expressions of the jazz style – a typical 5/8 meter, accentuation, characteristic harmonic colors, use of extreme registers, variation in development as an analogue of improvisation. Performing this piece implies that the student has a well-developed pianistic foundation. First of all, it requires the performer to have impeccable rhythmic discipline, energetic tone of play, and a sharp accent energy that controls the rhythmic pulsation. This task is not easy.

The second most important problem for the performer is the nature of sound production. The dominant type of touch in this piece is percussion, requiring sharp marking and finger clarity. And finally, the third problem is correct pedaling. There are no pedal instructions in the *Scherzo* text, but this does not mean abandoning the pedal. The pedal should be strictly limited, “direct”, and performing an accent function.

In the process of work, the student, who is at the final stage of learning to play the piano, was able to independently identify performance problems, found their own resources to solve them, and through many hours of hard work achieved a high result. The teacher only provided starting points for their creative quest.

**Conclusion.** Summarizing the above, we note that PBL is one of the most organic and successful motivational strategies for performing disciplines at a music university. The research work of a student in piano classes and the application of already developed skills and abilities in a new context confirm the validity and relevance of the ideas of problem-based pedagogy for teaching in the piano class.

Analysis of the experience of introducing problem-based learning into the practice of studying the “Compulsory Piano” discipline allows us to draw conclusions about significant changes in the level of development of general and professional competencies. PBL technology taught students how to:

- constantly be in active search, and be independently-minded;
  - take responsibility for their own learning;
  - clearly formulate the very essence of the performance problem and find possible alternative solutions thereto;
  - conduct an independent search for ways of professional improvement throughout your life.
- In our opinion, this is the most important quality for a performing musician.

And lastly, for us, practicing teachers, the students’ opinion regarding the new teaching technology, obtained as a result of interviews, was important. The vast majority of them consider problem-based learning to be interesting, exciting, developing a wide range of competencies, and significantly simplify entry into their future profession. And although the creation of courses using the PBL method can be a significant adjustment for teachers, the result is worth it – competently structured training will help prepare qualified specialists who do not give in to professional challenges.

#### References:

1. Дьюи Д. *Демократия и образование: Пер. с англ. М.: Педагогика-Пресс, 2000. – 383 с.*
2. Барينو́ва М.Н. – ученица великих. *Сборник статей и воспоминаний. СПб: Папирус, 2002. – 160 с.*
3. Асафьев Б. *Об исполнителях // Б. Асафьев. Критические статьи и рецензии. Л., 1967.*
4. Алексеев А. *Музыкально-исполнительское искусство конца XIX – первой половины XX века. М., 1995. – 328 с.*
5. Баренбойм Л. *Музыкальная педагогика и исполнительство. Л.: Музыка, 1974.*
6. Джумакова У.Р. *Творчество композиторов Казахстана 1920-1980-х годов. Проблемы истории, смысла и ценности: монография [Текст] / У. Р. Джумакова. Астана: Фолиант, 2003. – 232 с.*
7. Barrows H. *Generic Problem-Based Learning Essentials, 2004. URL: [http://www.pbli.org/pbl/generic\\_pbl.htm](http://www.pbli.org/pbl/generic_pbl.htm).*

8. Savin-Baden M. *Facilitating Problem Based Learning: Illuminating Perspectives*. Buckingham: Society for Research in Higher Education / Open University Press, 2003.
9. Newman M.J. «Problem Based Learning: an Introduction and Overview of the Key Features of the Approach»// *Journal of Veterinary Medical Education*, 2005. – No. 32 (1) – pp. 12-20
10. Оконь В. Основы проблемного обучения. М., 1968. – 208 с.
11. Махмутов М.И. Организация проблемного обучения. М.: Педагогика, 1997.
12. Проблемное обучение – вызов третьего тысячелетия: Материалы II Московской международной конференции «Образование в XXI веке – глазами детей и взрослых» / Отв. ред. Е. В. Ковалевская. М.: Лингвастарт, 2002. – 168 с.
13. Петрова В.Н. «Возможности применения технологии проблемно-ориентированного обучения (PBL) в практике высшего образования (на примере ТГУ)»// *Сибирский психологический журнал*, 2017. – №65 – С. 112-124
14. Нуртазин С.Т., Базарбаева Ж.М., Есимсиитова З.Б., Ермекбаева Д.К. «Инновационный метод Проблемно-ориентированного обучения (Problem-based learning – PBL)». *Advances in current natural sciences*, 2013. – №5 – С. 112-114
15. Рубинштейн С. Л. О мышлении и путях его исследования / АН СССР, Ин-т филос. М.: АН СССР, 1958. – 145 с.
16. Абдуллин Э.Б., Майковская Л.С. «Технологии обучения основам исследовательской деятельности педагога-музыканта». *Преподаватель XXI век*, 2015. – №4 – С. 210-215
17. Блок О.А. «Музыкальное произведение как объект освоения в классах инструменталистов: герменевтический подход»// *Мир науки, культуры, образования*, 2020. – №5 (84) – С. 193-195
18. Каишаури Э.Г., Кузнецова А.В. «О роли проблемного обучения в воспитании пианиста»// *Современные наукоемкие технологии*, 2019. – №12-1 – С. 178-184
19. Климай Е.В. «Проблема музыкального мышления в фортепианной педагогике»// *Мир науки, культуры, образования*, 2021. – №1 (86) – С. 171-173
20. Кодиңцева Д.Ю. «Проблема адаптации современных идей проблемной педагогики к традиционным формам преподавания фортепиано»// *Мир науки, культуры, образования*, 2022. – №2 (93) – С. 196-198

#### References:

1. Dewey D. *Demokratiya i obrazovanie*. М.: Pedagogika-Press, 2000. – 383 s.
2. Barinova M.N. – *uchenica velikih. Sbornik statej i vospominanij*. SPb: Papyrus, 2002. – 160 s.
3. Asaf'ev B. *Ob ispolnitelyah* // B. Asaf'ev. *Kriticheskie stat'i i recenzii*. L., 1967
4. Alekseev A. *Muzykal'no-ispolnitel'skoe iskusstvo konca XIX – pervoj poloviny XX veka*. М., 1995. – 328 s.
5. Barenbojm L. *Muzykal'naya pedagogika i ispolnitel'stvo*. L.: Muzyka, 1974
6. Dzhumakova U.R. *Tvorchestvo kompozitorov Kazahstana 1920-1980-h godov. Problemy istorii, smysla i cennosti: monografiya*. Astana: Foliant, 2003. – 232 s.
7. Barrows H. *Generic Problem-Based Learning Essentials*, 2004. URL: [http://www.pbli.org/pbl/generic\\_pbl.htm](http://www.pbli.org/pbl/generic_pbl.htm)
8. Savin-Baden M. *Facilitating Problem Based Learning: Illuminating Perspectives*. Buckingham: Society for Research in Higher Education / Open University Press, 2003
9. Newman M.J. *Problem Based Learning: an Introduction and Overview of the Key Features of the Approach*. *Journal of Veterinary Medical Education*, 2005. – № 32 (1) – P. 12-20
10. Okon' V. *Osnovy problemnogo obucheniya*. М., 1968. – 208 s.
11. Mahmutov M.I. *Organizaciya problemnogo obucheniya*. М.: Pedagogika, 1997
12. *Problemnoe obuchenie – vyzov tret'ego tysyacheletiya. Materialy II mezhdunarodnoj konferencii «Obrazovanie v XXI veke – glazami detej i vzroslyh»*. М.: Lingvastart, 2002. – 168 s.
13. Petrova V.N. *Vozmozhnosti primeneniya tehnologii problemno-orientirovannogo obucheniya (PBL) v praktike vysshego obrazovaniya (na primere TGU)*. *Sibirskij psihologicheskij zhurnal*, 2017. – № 65 – S. 112-124
14. Nurtazin S.T., Bazarbaeva Zh.M., Esimsiitova Z.B., Ermekbaeva D.K. *Innovacionnyj metod Problemno-orientirovannogo obucheniya (Problem-based learning – PBL)*. *Advances in current natural sciences*, 2013. – № 5 – S. 112-114
15. Rubinshtejn S.L. *O myshlenii i putyah ego issledovaniya*. AN SSSR, In-t filoz. М.: AN SSSR, 1958. – 145 s.
16. Abdullin E.B., Majkovskaya L.S. *Tehnologii obucheniya osnovam issledovatel'skoj deyatel'nosti pedagoga-muzykanta. Prepodavatel' XXI vek*, 2015. – № 4 – S. 210-215
17. Блок О.А. *Muzykal'noe proizvedenie kak ob'ekt osvoeniya v klassah instrumentalistov: germenevicheskiy podhod*. *Mir nauki, kul'tury, obrazovaniya*, 2020. – №5 (84) – S. 193-195
18. Kaishauri E.G., Kuznecova A.V. *O roli problemnogo obucheniya v vospitanii pianista. Sovremennye naukoemkie tehnologii*, 2019. – № 12-1 – S. 178-184
19. Klimaj E.V. *Problema muzykal'nogo myshleniya v fortepiannoј pedagogike*. *Mir nauki, kul'tury, obrazovaniya*, 2021. – №1 (86) – S. 171-173
20. Kodingceva D.YU. *Problema adaptacii sovremennyh idej problemnoj pedagogiki k tradicionnym formam prepodavaniya fortepiano*. *Mir nauki, kul'tury, obrazovaniya*, 2022. – №2 (93) – S. 196-198