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Innovative methods in modern piano pedagogy

Stepan Solanskyi*

Lviv National Music Academy named after M.V. Lysenko
79000, 5 Ostap Nyzhankivskyi Str., Lviv, Ukraine

Zenoviia Zhmurkevych

Lviv National Music Academy named after M.V. Lysenko
79000, 5 Ostap Nyzhankivskyi Str., Lviv, Ukraine

Svitlana Saldan

Ivan Franko National University of Lviv
79000, 1 Universytetska Str., Lviv, Ukraine

Oksana Velychko

Ivan Franko National University of Lviv
79000, 1 Universytetska Str., Lviv, Ukraine

Nina Dyka

Lviv National Music Academy named after M.V. Lysenko
79000, 5 Ostap Nyzhankivskyi Str., Lviv, Ukraine

Abstract

Relevance. In the digital age, technology is constantly evolving. This opens new perspectives for improving teaching processes and methods of pedagogical practice, and therefore the study of the use of the latest technologies in piano pedagogy is a relevant and important task today.

Purpose. The purpose of this study was to explore and analyse innovative approaches in modern piano pedagogy to optimise the learning process and increase the effectiveness of music education.

Methodology. The following research methods were used in the study: analysis, generalisation, and systematisation.

Results. The study found that in the interaction between a teacher and a student, the success of learning depends not only on technical nuances but also on psychological aspects. The history of musical art in Ukraine shows its adaptation to changes in society. Modern challenges require the integration of art with other socio-cultural fields. The Ukrainian piano pedagogy of today unites various musical traditions. Technologies such as augmented reality are being actively introduced into the educational process. Innovations in music education were offered, including tools such as MusicFlow and artificial intelligence (AI), which facilitate an individual approach to music learning. The use of modern technologies in piano pedagogy is key to achieving high results.

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*Corresponding author



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Conclusions. The results of the study can be used to develop new pedagogical methods and approaches in piano education. This can also facilitate the integration of modern technologies, such as augmented reality and AI, into the learning process, which enhances the effectiveness and individualisation of training.

Keywords: music education; digital technologies; interactive teaching methods; musical art; piano pedagogy; performance aspects.

Introduction

Today's students have different interests, skills, and expectations of learning than previous generations. Innovations allow teachers to adapt to these changes and provide students with relevant and effective knowledge based on modern teaching methods. Teachers and educational institutions that actively implement innovations can gain competitive advantages in the education market by attracting more students and providing them with high quality education. Their research is important because innovations can help ensure that more people have access to quality piano education, regardless of their geographical location or social status. The problem of this study is that the latest technologies and innovations are changing rapidly. This requires constant updating of knowledge. Investigating the topic requires a comprehensive approach, analysis of a range of factors, and a profound understanding of the specifics of modern piano pedagogy.

According to L. Huraj et al., the use of artificial intelligence (AI) in the educational environment is a leap forward in the development of modern educational technologies [1]. This transformational dynamic opens endless possibilities for improving the quality and efficiency of the process. Scientists are convinced that AI applications are penetrating various areas of education, including automated adaptive learning and analysis of student performance data. This leads to active discussions among educators, scientists, and education experts on how to effectively use these technologies to improve the quality of education and the readiness of the younger generation to meet the challenges of the modern world, which requires more detailed research.

O. Bassa et al. address the significance of the problem of establishment and development of the professional competence of a performing musician in higher education institutions of the arts [2]. They emphasise that this problem is multifaceted, encompassing various aspects of music performance, and its interaction with the cultural context of society. The researchers emphasise that modern piano pedagogy should be adaptive and flexible, considering changes in public attitudes, technological advances, and cultural trends. They are convinced that music teachers should be open to innovation, constantly update their knowledge and skills, and interact with colleagues from other fields of art and science to share experiences and better understand current challenges. In the light of this research, it becomes apparent that the development of a performing musician requires an integrated approach that encompasses not only technical skill, but also artistic education, emotional intelligence, and the ability to adapt to change. This issue requires further research.

I.M. Taran points out the significance and effectiveness of innovative pedagogical approaches in teaching piano [3]. Following the researcher, the active use of interactive

methods can substantially improve the quality of the learning process. The researcher addresses the significance of stimulating independence and creativity in future pianists. Her research confirms that conventional teaching methods based on mechanical repetition may lose their relevance in the modern educational context. One of the key advantages of interactive approaches is their ability to activate students, engage them in creative and exploratory activities. This approach not only makes learning more dynamic and interesting, but also helps students develop a profound understanding and application of musical knowledge. It is important to emphasise the need for further research and integration of innovative pedagogical methods into the modern system of music education, which ensures the development of students' comprehensive musical competences and their creative potential.

I.B. Arshinova is convinced that the process of learning to play the piano should follow certain systematic principles [4]. According to the researcher, the initial stages of this educational process serve as the basis for the further development of musical skills and improvement of students' technical skills. The researcher considers the initial months of study as a critical period where individual characteristics of students and the choice of best pedagogical methods are revealed. According to the researcher, modern teachers have a variety of methodologies for different age groups and musical needs, which reflects the evolution of music pedagogy. The researcher emphasises that the modern pedagogical approach is the result of a long evolutionary process that has transformed the general pedagogical principles of the past into concrete and scientifically sound methods of the present. It is advisable to investigate modern methodological approaches to piano pedagogy in greater detail.

Z.Y. Yang emphasises two key strategies for integrating modern technologies into the process of teaching piano [5]. The researcher points to increased interaction during group activities as one of the responses to technological innovation. Furthermore, Yang considers the trend towards the growth of an individualised approach to learning, where the responsibility for the learning process is partially transferred to students. However, the scientist emphasises that not all modern technologies are ready for immediate implementation in the educational process, and it is vital to maintain a balance between innovations and conventional methods of music pedagogy. A detailed analysis of various pedagogical approaches to piano teaching should be carried out to effectively integrate modern technologies into the learning process.

The purpose of this study was to review and critically analyse innovative methods in piano pedagogy to improve the methodology of the educational process and enhance the quality of music education.

Materials and methods

In the implementation of the present study, a set of various methods was employed to investigate the chosen topic in depth and obtain objective results. Specifically, an essential role in this process was played by the methods of analysis, generalisation, and systematisation, which allowed for a comprehensive approach to the problem and provided a more profound understanding of the issue of innovation in contemporary piano pedagogy.

The method of analysis revealed the specific features of musical art that played a key role in the development of Ukrainian cultural identity. This manifests itself in the reflection of spiritual, historical, and emotional aspects of national identity through the musical experience of the people. Specifically, analysis helped to investigate the modern information and technologically advanced educational environment. The analysis also highlighted how success in the learning process depends on the interaction between the teacher and the student, as well as on the psychological readiness of the participants in the educational process to cooperate. The historical heritage of Ukraine, which was studied using the method of analysis, manifested itself in the nuances of flexibility and ability to adapt to socio-cultural transformations in the piano school.

In this study, the method of generalisation was used to systematise and combine various aspects of the Lviv piano school's activities in the context of Ukrainian piano pedagogy. This method helped to identify the key role of the school in the establishment and development of national music education, as well as its influence on the unification of various European musical traditions. Using the method of generalisation, the study showed how the Lviv piano school became a significant cultural phenomenon that promoted integration and cooperation between different musical schools and trends. Generalisation helped to identify the contribution of teachers to the methodology of teaching within the Ukrainian piano school. This method revealed how the school's teachers have integrated innovative methods and modern technologies to improve the efficiency of the educational process. Generalisation has become a valuable tool for identifying and analysing key aspects of the development of the Ukrainian piano school and its influence on contemporary Ukrainian piano pedagogy.

The method of systematisation was used to investigate the impact of technological innovations on modern music education, specifically piano pedagogy. This method revealed various aspects and areas in which technologies influence the educational process in music pedagogy. Furthermore, systematisation was used to gain a more profound understanding of how technological innovations can contribute to the individualisation and optimisation of the learning process in music education. This method helped to systematise the various methods and practices implemented in modern music pedagogy to support students in their learning process. Thus, the systematisation method has become a tool for organising information about the relationship between conventional teaching methods and innovative technological solutions. The use of the systematisation method also helped to investigate how the integration of technology into music pedagogy affects the effectiveness of the educational process.

Results

Ukrainian music has always played a key role in shaping the country's national identity and cultural heritage. Its development and transformation took place in the context of profound socio-cultural changes that have been taking place in Ukraine for centuries. Since ancient times, music has reflected the spirituality, history, and experiences of the Ukrainian people. Through songs, melodies, and instrumental compositions, musicians passed on the traditions, customs, and beliefs of generations. The development of musical culture was particularly active during periods of cultural prosperity and national revival. Due to their profound sense of the relationship between music and cultural values, Ukrainian composers and performers influenced the development of musical trends that reflected the spirit of the era. They have adapted to the new realities, integrating elements of different cultures, but at the same time preserving their unique national flavour.

Due to its unpredictable influence on the human psyche, emotions, and character, the art of music is recognised as a key element of the educational process that strives for high quality. In this regard, there is a growing interest in music education in modern society, specifically, in learning to play the piano. Adapting conventional approaches to piano teaching and modernising them to meet the requirements of the modern world can meet the needs of a wide range of people for access to music education. Modern technologies, specifically the Internet, open new horizons for mass learning to play the "intelligent" piano [6]. Scientific research indicates that with the active development and popularisation of these technologies, music education will experience substantial progress, which will contribute not only to the development of aesthetic qualities of the individual, but also to their overall cultural and spiritual growth.

Music education has its own unique dynamics, where the interaction between student and teacher plays a critical role. Even the most talented musicians can have difficulty developing and expressing themselves if they do not develop the right relationship with their teacher. This can lead to an incomplete fulfilment of their musical potential and creative sense. Therefore, music teachers are expected not only to be professionally trained and skilled in playing an instrument, but also to have a prominent level of pedagogical skills, understanding of student psychology, and the ability to motivate and inspire self-improvement [7]. Such requirements are considered in training and selection of teachers to ensure the best possible development and support of students' musical talent.

In today's world, which is undergoing profound global transformations and is actively developing towards a creative economy, the intellectual and creative potential of an individual is of particular importance. Crisis events, such as the COVID-19 pandemic and the Russian invasion of Ukraine, have caused dramatic changes in the education system, drawing attention to the need to move from conventional forms of education to a distance format. In the context of art education, a concept is emerging that aims to combine the exact sciences with art. This allows developing innovative approaches to solving pressing problems of modern times. A person with an artistic education has a unique ability to analyse complex situations, find best solutions and understand the key

transformations taking place in society. Artistic higher education is aimed at forming a creative personality with developed critical thinking who can make a considerable contribution to the development of culture and the entire society. Socio-historical, axiological, and innovative approaches are actively used to analyse the relationship between art education and modern technological and cultural trends. These methods help to reveal the profound processes of digitalisation, technologisation, and preservation of cultural values in the modern world [8]. Thus, art education plays a key role in the development of flexible, creative individuals who can adapt to the rapidly changing conditions of modern life, respond to challenges, and contribute to the development of cultural heritage and intellectual potential of society.

Instrumental performance education in Western Europe is characterised by shared values that foster talent development and the formation of relationships between student and teacher. This approach is based on the concept of *Bildung*, which originates from Germany and is known as “*dannelse*” [9]. A vital aspect of piano music education is democratic values that support the rights and equality of students, which includes increased transparency in the assessment and evaluation of student performances, making learning more accessible and equitable for all. In the contemporary practice of piano pedagogy in Western Europe, particularly in Germany, there is an active development of composer pedagogy as an essential element of music education. This area is becoming increasingly important in studying music both in school and out-of-school contexts. Project initiatives within the school curriculum, collaboration with composers, as well as extracurricular activities and instrumental lessons form an integral part of this innovative approach [10].

Piano lessons in Western Europe are becoming more dynamic and creative thanks to the introduction of composer pedagogy. The use of compositions in and out of the classroom allows students to actively engage in the creative process, express their musical ideas, and develop their musical personality. School projects aimed at collaborating with composers are becoming part of an innovative approach to piano pedagogy. Students not only learn existing works, but also can actively collaborate with contemporary composers, creating their own compositions and taking part in creative projects. This transition to compositional pedagogy is evidence of the rapid development of piano education in Western Europe, where innovative teaching methods contribute to the unlocking of students’ creative potential and active interaction with the musical world of today. In contemporary Ukrainian piano pedagogy, a special place is occupied by the Lviv school, which is known for its unique approach to teaching, combining the influences of Austrian, German, Polish, Czech, and Kyiv musical traditions. A unique piano style is being formed in Lviv, reflecting the interaction of various cultural and musical influences [11]. The representatives of the contemporary Lviv piano school are an entire galaxy of pianists and teachers.

Higher music education requires the definition of key categories, including co-creation, decoding a work,

understanding the author’s style, intonation, and rhythmic structure, the role of improvisation, the use of technology, and cultural understanding of works [12]. Notably, the significance of such aspects as innovations in the educational process, ethnic and national identity of the works, aesthetic and psychological foundations of concert activity. Modern trends in music pedagogy in higher education institutions focus on the integration of theory and practice, as well as on the material and technical support of the educational process. Therefore, in the field of contemporary piano pedagogy, the key is to define the teacher as a mediator of the educational process. M. Lastovetskyi, known for his expertise in theoretical aspects of music education, effectively synthesises the academic tradition with the practical skills of a composer. M. Lastovetskyi shows a tendency to reinterpret and modify polyphonic methodologies, which puts his pedagogical practice in a range of innovative approaches. M. Lastovetskyi’s cycle “Fifty Polyphonic Pieces-Canons on the Themes of Ukrainian Folk Songs” serves as a paradigmatic example of his research approach to the use of polyphony in piano art. Central to M. Lastovetskyi’s methodological approach is the desire to integrate elements of national musical culture into a polyphonic context. This contributes not only to the decolonisation of piano discourse, but also stimulates academic interest in the cultural analysis of musical heritage. The significance of M. Lastovetskyi as a composer and teacher lies in his innovative approach to the use of polyphonic methodologies. He conducts research in different styles and approaches, which activates the creative potential of the educational community and contributes to the dynamics of music pedagogy. The composer’s work serves as an excellent scientific precedent in the context of piano pedagogy. His methodological approaches actively contribute to research in the field of music education and the introduction of new methods in the pedagogical process [13].

Modern innovative teaching methods in music pedagogy are marked by a variety of different approaches and areas. Among these innovations, a special place is occupied by the development of the Augmented Reality Piano (AR Piano) system, which is a productive combination of augmented reality technologies and modern teaching methods. The markerless learning methodology, which is the centrepiece of this system, is based on the integration of a video camera and specialised software. This technology can precisely track the pianist’s finger movements while playing music on a MIDI keyboard, indicating the best key position for playing individual notes or chords. For the user, this innovative system allows them to concentrate on playing the melody, using the backlight, and adapt the tempo of the game to their own musical skills. Notably, AR Piano does not yet address the issue of optimising the playing technique aimed at efficient and dynamic finger placement during music performance [14].

Today, piano teaching is undergoing a period of innovation and methodological change, focusing on modern requirements and opportunities (Table 1).

Table 1. Modern methodological approaches to teaching piano

Methodological approaches	Description
Interactive teaching	This approach focuses on the active involvement of students in the learning process. Interactive methods stimulate students to engage in independent research, creative thinking, and creative performance.
Using technological tools in teaching	The use of modern technology, such as computer-based piano learning programmes, can greatly facilitate the learning process by providing additional opportunities for analysis, visualisation, and support.
Integrative approach	The combination of conventional methods with elements of other musical disciplines, such as music theory, solfege, and music history, allows students to develop a comprehensive understanding and application of musical knowledge.
Personalised training	Focusing on the individual needs and interests of each student, developing individualised curricula and methods.
Creative teaching methods	Introducing various creative tasks, improvisation exercises, and encouraging students to create their own musical compositions.
Pedagogy of experience	Emphasis on the practical use of the knowledge gained, master classes, participation in competitions and festivals to gain practical experience and improve skills.

Source: compiled by the authors of this study.

The use of these and other modern methodological approaches in piano teaching contributes to the development of in-depth musical knowledge, skills, and abilities of future pianists, adapting them to modern challenges and opportunities.

Learning to play the piano has always been a challenge for many people. Students, regardless of age and experience, often have difficulties that become an obstacle to mastery. One of the key challenges is the reproduction of musical compositions. The use of modern technologies contributes to the development of new teaching methods that make the process of learning piano skills more accessible and understandable. Interactive applications and programs can provide visual and audio instructions, making it easier to understand rhythm, music notation, and playing techniques. Furthermore, virtual platforms can create interactive learning scenarios where the student experiments with different melodies, receiving immediate feedback, and correcting their mistakes. Such instruments can be especially useful for beginners who are just starting out in the world of music. However, despite the potential benefits, it is vital to emphasise that no technology can completely replace the conventional approach to music education. An individual approach from the teacher, personal contact and emotional immersion in music-making are still essential elements of piano lessons. Therefore, despite all the technological innovations, the main task is the development and inspiration of musical talent.

The development of technology is constantly opening new opportunities for learning, especially in the music field. The creation of special gloves for teachers and students is a vivid example of the synergy between conventional teaching methods and modern technology. Teachers' gloves are a high-tech tool with built-in pressure sensors located on each finger. These sensors measure the force with which the teacher presses the keys and transmit the corresponding signal to the student's gloves. This signal activates the vibrating motor and LED indicator on the student's specific finger, informing them of the correct key. The principal idea is that the student should have a clear understanding of which finger the teacher uses to press a particular key. This can greatly facilitate the learning process, allowing students to develop their

playing technique and understanding of music faster. Interlink's FSR 400 glove-embedded sensors are highly sensitive to pressure changes. When a force is applied to the surface of the sensor, its resistance changes, which allows measuring the intensity of the pressure. These sensors are integrated into a system that includes Digi International's Xbee Series 1 digital modules, enabling wireless communication between the teacher and student gloves. This innovative approach can open new horizons in music education, making the learning process more interactive and effective. The use of such technologies can be a step towards a new stage in music education, where a combination of traditional methods and innovative solutions can contribute to a more profound and more focused learning of piano skills [15].

The modern world of music education actively integrates the use of various software tools that stimulate the development of skills in playing various musical instruments, including the piano. Among these tools, a special place belongs to the interactive music composition system called MusicFlow. MusicFlow is not just an application, but an innovative tool that has a profound impact on the learning process. It is designed to promote the harmonious and aesthetic reproduction of musical notes, which is the foundation of piano skills. The system helps students to better understand musical structure, rhythm and expressiveness, which undoubtedly improves the quality of their performance. One of the key advantages of MusicFlow is that it helps students not only during direct lessons, but also outside of class. While preparing for lessons and doing homework, the programme provides additional opportunities for in-depth study of the material and support for musical development. Considering the influence of modern technologies on music education, it can be argued that innovations such as MusicFlow are invaluable for future musicians, contributing to their professional growth and achieving high standards of musical performance [16-18].

The integration of AI into the educational environment represents a dramatic leap forward in relation to modern educational technologies. This transformation opens a limitless horizon of opportunities offered by AI to improve the quality and efficiency of the educational process. AI is penetrating various aspects of education, from automated

adaptive learning to analysing data on student achievement [19]. These reliable and precise systems allow for individualised learning, adapting the learning process to the needs of each individual student [20; 21]. Modern AI technologies continue to evolve, bringing new tools and resources to the educational environment. This stimulates active discussions among educators, scientists and educational experts on how best to use these technologies to improve the quality of education and prepare the younger generation for the challenges of the modern world. Thus, the integration of AI into the educational environment not only expands the possibilities of modern pedagogy, but also intensifies discussions about what the future of education should look like and what methods and approaches will be most effective in this rapidly changing technological world.

Innovations in modern piano pedagogy play a key role in improving and enriching the learning process. They introduce the latest methodological approaches that help to expand the understanding of musical concepts, stimulate students' creativity, and increase their motivation to learn. Innovative methods focus on the individual needs of students, which allows tailoring the approach to each student. The use of modern technologies and interactive tools contributes to the growth of learning efficiency and adaptation to the modern challenges of the music world. The main purpose of these innovations is to make the process of learning to play the piano more interesting and productive for each student.

Discussion

In the modern era, Ukrainian music is demonstrating dynamic development, rooted in ancient traditions, but at the same time marked by a profound response to current socio-cultural and global challenges. Musicians and composers, feeling the need for a synthesis between preserving the unique cultural heritage and adapting to the international musical space, are actively working on developing new creative forms. Notably, scientists from different countries have been actively researching the specific features of contemporary art in recent years, focusing on innovations in piano pedagogy [22; 23]. These studies reflect different approaches and perspectives on the transformation of music education in the modern world. Studying and analysing the positions of scientists on this issue can help in understanding and adapting the most effective methods and approaches in the educational process. Comparison of different scientific studies can contribute to the development of a more profound and more comprehensive view of the prospects for the development of modern piano pedagogy, as well as contribute to the formation of a future development strategy.

According to a study by F. Delogu et al., the software sector in education is developing rapidly [17]. Researchers note that in this high-tech segment, there are specialised proprietary IT solutions designed to solve concrete issues, particularly in the artistic education sector. However, one of the key shortcomings identified in their study is the limited ability of videoconferencing to provide teachers with metacognitive information about student progress, which is crucial in music pedagogy, where it is difficult to capture aspects that require attention. An additional factor

to consider, according to the researchers, is the prohibitive cost of creating an "ideal" piano lesson due to the integration of many technological tools. The authors of the present study agree with the conclusions of the researchers that the use of the latest technologies in the context of music education, specifically, piano playing, is not only a promising but also an effective area of development.

According to J. Enbuska et al., digital transformation crosses all stages of the modern educational process, from primary to higher education [18]. The researchers emphasise that students are increasing their involvement in the internal life of music higher education institutions, contributing to the development and adaptation of course programmes, and the emergence of the concept of blended learning opens new opportunities for creating an adaptive e-learning space that would meet the needs of both students and teaching staff. The researchers are convinced that most e-learning platforms have a modern design and content, but they require certain skills from users to use them effectively. Therefore, in comparison with the findings of the present study, it is relevant for modern educational practice to provide students and teachers with explanations about the possibilities and methods of using electronic and blended learning platforms to maximise the potential of the independent educational process.

E. Parkita focuses on the investigation of the role of music teachers in the context of new media [19]. Music teachers are faced with the need to adapt to rapidly changing technological innovations, which requires them to constantly grow and develop professionally. At the same time, they are trying to integrate these innovative technologies into the modern teaching arsenal without abandoning the conventional methods of teaching music that have already proven their effectiveness. According to a study conducted by the researcher, the introduction of innovations in the music teaching process can cause a range of challenges for participants in the educational process. Such challenges concern both students who have to adapt to new technological approaches and teachers who have to find a balance between conventional and innovative methods [24; 25]. However, according to the conclusions of the research, the researcher believes that such innovations can improve the quality of music education in society. Comparing the results of the cited research with the findings of the present study, it should be noted that although the process of adaptation can be difficult, in the long run, the benefits of using modern media technologies in music education far outweigh the possible risks and challenges.

Thanks to the rapid development of technology, the music world is undergoing a revolution, where new technical capabilities are changing the way music is created, performed, and perceived [26-28]. C. Cheng and Y. Xiao consider music not just as an art, but as a reflection of emotions and profound aspects of human reality that transcend even language or ideology [20]. They highlight the potential of AI in music education to transform the learning process. AI-powered tools can analyse and play back complex musical compositions, simplifying them for students to better understand [29]. These technologies help teachers solve tasks that were previously considered a challenge and provide students with new opportunities for profound immersion in the musical world. Changes in

approaches to music education have become possible thanks to new tools that bring teachers and students closer together, regardless of physical distance [30; 31]. It should be agreed that this promotes innovation in the field of music education, allowing it to adapt to modern realities and meet the growing needs of the modern world.

At the same time, J.C.W. Chen points out the significance of mobile technologies in the context of piano learning, especially in the context of working with scales and arpeggios [21]. He emphasises the considerable impact of specialised programs that use AI to help students not only practice but also analyse their performances independently, identifying, and correcting mistakes. This innovative programme allows students to record their sessions, receiving detailed feedback and adapting their approach to practising musical phrases, which is particularly useful in a virtual environment where students can focus on improving their skills from the comfort of their homes [32-35]. The researcher offers a blended learning concept that combines conventional methods with interactive AI-powered mobile applications. Notably, this model emphasises the significance of combining the latest technologies with conventional approaches to music education, thus creating a more effective holistic learning environment.

The use of the latest technologies in the field of piano pedagogy and music education in general has the potential to revolutionise the learning process. However, with modern opportunities also come challenges that require attention and solutions. The high-tech software segment in education is developing rapidly, offering specialised IT solutions [36; 37]. However, there are limitations, such as the lack of metacognitive information for teachers, and the high costs of implementing technology perfectly in the classroom. Digital transformation is actively penetrating all levels of the educational process, contributing to the creation of an adaptive e-learning space [38]. However, in comparison with the findings of the present study, it is worth noting that the effective use of electronic platforms requires certain skills and explanations for users. Integrating the latest technologies into the learning process can be challenging, but it opens opportunities to improve the quality of music education. Combining the latest technology with conventional methods can be the key to successful music education, allowing students to dive deeper into the world of music and teachers to help them effectively in this process [39; 40]. Thus, the introduction of technology into music education opens new opportunities for participants in the educational process, but requires attention to detail, specifically, to ensure the

quality of learning and adaptation to the needs of the modern world.

Conclusions

The significance of the right interaction between teacher and student emphasises that learning depends not only on technical aspects, but also on relationships and psychological adaptation. The historical context of Ukraine demonstrates how the art of music has adapted to socio-cultural changes, and contemporary challenges, such as global crises, highlight the need to integrate art with other fields of knowledge for the further development of society.

In contemporary Ukrainian piano pedagogy, a special emphasis is placed on the Lviv piano school, which is a unique cultural phenomenon, combining various performing musical traditions. Her methods and approaches reflect a profound cultural understanding and synthesis of different musical styles. M. Lastovetskyi proposed an innovative approach to the use of polyphony in teaching piano. Technological innovations also find their way into modern teaching methods, including augmented reality in music pedagogy. Investigating the table of modern methodological approaches, it can be concluded that contemporary piano pedagogy in Ukraine is actively adapting to modern challenges, combining conventional methods with modern technological tools for teaching and developing students' musical abilities.

Technology continues to transform the field of music education, offering innovative tools and approaches to learning. The integration of modern technologies, such as teacher and student gloves, and systems such as MusicFlow demonstrates the potential to improve the quality of the learning process. AI opens many possibilities for individualising and optimising learning. The growing significance of innovation in piano pedagogy emphasises the need to combine conventional methods with modern technological solutions to achieve better results in music education.

Researchers in the field of piano pedagogy and its current challenges should pay attention to the study of the influence of music on the psycho-emotional state of students, methods of motivation, and psychological barriers to learning to play the piano.

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Conflict of Interest

None.

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Інноваційні методи в сучасній фортепіанній педагогіці

Степан Соланський

Львівська національна музична академія імені М.В. Лисенка
79000, вул. Остапа Нижанківського, 5, Львів, Україна

Зеновія Жмуркевич

Львівська національна музична академія ім. М.В. Лисенка
79000, вул. Остапа Нижанківського, 5, Львів, Україна

Світлана Салдан

Львівський національний університет імені Івана Франка
79000, вул. Університетська, 1, Львів, Україна

Оксана Величко

Львівський національний університет імені Івана Франка
79000, вул. Університетська, 1, Львів, Україна

Ніна Дика

Львівська національна музична академія ім. М.В. Лисенка
79000, вул. Остапа Нижанківського, 5, Львів, Україна

Анотація

Актуальність. У цифрову епоху технології постійно розвиваються. Це відкриває нові перспективи для вдосконалення навчальних процесів та методів педагогічної практики, а тому дослідження використання новітніх технологій у фортепіанній педагогіці є актуальним і важливим завданням сьогодення.

Мета. Метою даного дослідження є вивчення та аналіз інноваційних підходів у сучасній фортепіанній педагогіці для оптимізації навчального процесу та підвищення ефективності музичної освіти.

Методологія. У дослідженні використано такі методи дослідження: аналіз, узагальнення та систематизація.

Результати. Дослідження виявило, що у взаємодії викладача та студента успіх навчання залежить не лише від технічних нюансів, але й від психологічних аспектів. Історія музичного мистецтва в Україні демонструє його адаптацію до змін у суспільстві. Сучасні виклики вимагають інтеграції мистецтва з іншими соціокультурними сферами. Сучасна українська фортепіанна педагогіка об'єднує різні музичні традиції. У навчальний процес активно впроваджуються такі технології, як доповнена реальність. Запропоновано інновації в музичній освіті, зокрема такі інструменти, як MusicFlow та штучний інтелект (ШІ), які сприяють індивідуальному підходу до навчання музики. Використання сучасних технологій у фортепіанній педагогіці є запорукою досягнення високих результатів.

Висновки. Результати дослідження можуть бути використані для розробки нових педагогічних методів і підходів у фортепіанній освіті. Це також може сприяти інтеграції сучасних технологій, таких як доповнена реальність та штучний інтелект, у навчальний процес, що підвищує ефективність та індивідуалізацію навчання.

Ключові слова: музична освіта; цифрові технології; інтерактивні методи навчання; музичне мистецтво; фортепіанна педагогіка; виконавські аспекти.