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INNOVATIVE STRATEGIES FOR INCORPORATING DIGITAL TECHNOLOGIES INTO HIGHER MUSIC AND ARTS EDUCATION

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SUMMARY. The modern educational system, responding to the needs of society, is actively transforming and integrating innovative approaches, among which digital technologies occupy a special place. The introduction of digital tools allows us to go beyond traditional learning and create an innovative educational environment focused on developing creativity and critical thinking. In the context of martial law in Ukraine and after the coronavirus crisis, digital technologies have become the basis for organizing the educational process, ensuring effective remote interaction between teachers and students. The study aims to comprehensively assess the impact of digital tools on the quality of training in higher art (music) education and to determine the potential of digital technologies for transforming modern pedagogical practices. The research used systematic and comparative approaches to study the theory and practice of integrating digital technologies into higher art (music) education. The article analyses the transformation processes in music and music education caused by the digitalization of society. It is proven that digital technologies are reforming music education, making it more open, dynamic and effective. This contributes to the development of the global music community and opens up new opportunities for creative expression. It is found that the use of artificial intelligence in the field

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of higher art (music) education is one of the most promising areas of modern pedagogical research. The application of virtual reality as a tool for interactive music teaching and simulation of concert performances is analyzed. It has been proved that modern artistic higher education is increasingly moving away from passive knowledge acquisition and towards the active development of each student's creative potential.

Keywords: globalization challenges, digital technologies, higher art education, cloud technologies, artificial intelligence, innovative approaches in education, pedagogical strategies.

Introduction

Modern global transformations are inextricably linked to personal development and society's education level. The level of development of society depends on the level of development of the individual, which, in turn, is determined by the state of education. Given the rapid changes in the world, the question arises as to how education adapts to new challenges and how a person finds his or her place in this dynamic process.

The recent coronavirus pandemic and the full-scale war in Ukraine have demonstrated that education can quickly adapt to new conditions thanks to the development of digital educational platforms. The rapid development of information technology and artificial intelligence requires society to adapt to new conditions and find new educational solutions, requiring new learning approaches. Innovation strategies at the national level have significantly impacted changes in the education systems of many developed countries, promoting the introduction of new technologies.

Research in music education shows that technology is becoming an integral part of the educational process, offering innovative teaching methods. That is why developing and implementing new approaches to teacher training in the context of reforming the sector and integration into the European educational space is an urgent task for Ukrainian higher education.

Literature review

The role of digital technologies in education is becoming increasingly relevant in scientific research, in particular, by such foreign scholars as Crompton

and Burke[5], Haddad and Draxler[6], Ouyang et al.[7], Prasad and Choudhary[8], and many Ukrainians – Honcharenko et al.[9], Drach et al.[10], Kryvonos and Kotenko[11], Semeniako et al.[12], Tolmach[13], Tolochko[14] and Shyshenko[15].

The issue of reforming music education in the context of digital technologies is studied in detail by such world scholars as Akšamija and

5 Crompton, Helene, and Diane Burke. "Artificial Intelligence in higher education: The state of the field", *International Journal of Educational Technology in Higher Education,* vol. 20, 2023, p. 22. https://doi.org/10.1186/s41239-023-00392-8

6 Haddad, Wadi, and Alexandra Draxler. (Eds.). *Technologies for Education: Potentials, Parameters and Prospects.* Paris: UNESCO and the Academy for Educational Development (AED), 2002.

7 Ouyang, Fan, Luyi Zheng and Pengcheng Jiao. "Artificial intelligence in online higher education: A systematic review of empirical research from 2011 to 2020", *Education and Information Technologies,* vol. 27, 2022, pp. 7893–7925. https://doi.org/10.1007/s10639-022-10925-9

8 Prasad, Ramjee, and Purva Choudhary. "State-of-the-Art of Artificial Intelligence", Journal of Mobile Multimedia, vol. 17, 2021, pp. 427–454. https://doi.org/10.13052/jmm1550-4646.171322

9 Honcharenko, Alla, Nataliia Diatlenko and Olena Poliakova. "Integration of digital technologies into the educational process in higher education: challenges and practical aspects", *Perspectives and innovations of science,* vol. 4, no. 38, 2024. https://doi.org/10.52058/2786-4952-2024-4(38)-155-168

10 Drach, Iryna, Olha Petroye, Oleksandra Borodiyenko, Iryna Reheilo, Oleksandr Bazeliuk, Nataliia Bazeliuk and Olena Slobodianiuk. "The Use of Artificial Intelligence in Higher Education", *International Scientific Journal of Universities and Leadership,* vol. 15, 2023, pp. 66–82. https://doi.org/10.31874/2520-6702-2023-15-66-82

11 Kryvonos, Oleksandr, and Oleksandr Kotenko. "The use of digital technologies in the educational process", *Science and Technology Today,* vol. 1, no. 15, 2023, pp. 161–176. https://doi.org/10.52058/2786-6025-2023-1(15)-161-175

12 Semeniako, Yuliia, Olena Fonariuk and Yuliia Chornysh. "Cloud technologies in blended learning: prospects and challenges", *Innovative Pedagogy,* vol. 50, no. 2, 2022, pp. 205–209. https://doi.org/10.32782/2663-6085/2022/50.2.40

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14 Tolochko, Svitlana. "Teachers' Digital competence in the context of digitalization of educational institutions and distance learning", *Bulletin of the National University "Chernihiv Collegium" named after T. G. Shevchenko,* vol. 13, no. 169, 2021, pp. 28–35. https://doi.org/10.5281/zenodo.5077823

15 Shyshenko, Inna. "Some aspects of the impact of digital technologies on the educational process of higher education institutions: an overview of problems and challenges", *Education. Innovation. Practice,* vol. 10, no. 5, 2022, pp. 42–47. https://doi.org/10.31110/2616-650x-vol10i5-006

Ploskić[16], Barrett et al.[17], Cuervo et al.[18], Fautley and Savage[19], Lebler[20], Walls[21]. Ukrainian scholars have also been actively engaged in this issue – Kyshakevych et al.[22], Kondratova[23], Martyniuk et al.[24].

An analysis of modern scientific works shows that the use of artificial intelligence and virtual reality in music pedagogy is one of the most relevant areas of research in scientific studies Onderdijk et al.[25], Shi[26], Yang[27], Tolstova et al.[28].

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16 Akšamija, Valida, and Nermin Ploskić. "Digital transformation of the teaching process in academic music education", *Periodical for social issues,* vol. 1, pp. 207–230, 2023. https://doi.org/10.48052/19865244.2023.1.207

17 Barrett, G., Fred Davis, Y Zhang, and M. Barrett. "The impact of information and communication technologies (ICT) on musical creativity: a review of music teachers", *Journal of Music, Technology & Education,* vol. 12, no. 3, 2019, pp. 263–279.

18 Cuervo, Laura, Carolina Bonastre, Celia Camilli, Delia Arroyo and Desirée García. "Digital Competences in Teacher Training and Music Education via Service Learning", *A Mixed-Method Research Project. Education Sciences,* vol. 13, no. 5, 2023, p. 459. https://doi.org/10.3390/educsci13050459

19 Fautley, Martin, and Jonathan Savage. "The role of information and communication technologies in music education in English schools", *British Journal of Music Education,* vol. 35, no. 2, 2018, pp. 117–135.

20 Lebler, Don. "Popular music pedagogy: peer learning in practice", *Music Education Research,* vol. 10, no. 2, 2008, pp. 193–213. https://doi.org/10.1080/14613800802079056

21 Walls, Martin. "The rise of digital music-making in schools during COVID-19. *Phys.org – News and Articles on Science and Technology,* 2023. https://phys.org/news/2023-03-digital-music-making-schools-covid-.html

22 Kyshakevych, Bohdan, Svitlana Kyshakevych and Halyna Stets. "Modern trends in the digitalisation of music education", *Academic visions,* vol. 27, 2024, pp. 1–10. https://academy-vision.org/index.php/av/article/view/888

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27 Yang, G. "Exploration of Vocal Music Teaching Mode from the Perspective of the Age of Artificial Intelligence", *International Journal of Frontiers in Engineering Technology,* vol. 2, no. 1, 2020, pp. 31–40.

28 Tolstova, Natalia, Svitlana Iryhina and Olena Liesnik. "Cloud-oriented technologies in vocal and choral training of higher education students: innovations, advantages, disadvantages", *Scientific works of the Interregional Academy of Personnel Management. Pedagogical Sciences,* vol. 2, no. 61, 2024, pp. 15–19. https://doi.org/10.32689/maup.ped.2024.2.3

A study of digital STEAM applications by Özer and Demirbatır[29] noted that they are an effective tool for modernizing music education. The authors prove that apps help create a more dynamic, comfortable, and favorable educational environment where students feel safe and can develop without restrictions. Integrating art education can make the learning process more exciting and compelling. Such trends are explored in the scientific works of Lv and Luo[30], Mandanici et al.[31], Park[32], Vizcaíno-Verdú et al.[33].

Despite the achievements, integrating digital instruments into the educational process remains relevant for further research. There is a significant gap in research that would allow for an objective comparison of the effectiveness of traditional and technological approaches to music education, and the rapid development of technology makes most existing studies irrelevant.

The study aims to comprehensively examine the issue of introducing digital technologies into higher art (music) education, including theoretical and practical aspects. The main task is to analyze the current state of the use of digital instruments in higher education institutions and to identify innovative approaches to the use of digital instruments in the educational process in this area.

Methods

The study was conducted based on theoretical and strategic analysis of official documents, analytical reports, and scientific publications on using digital teaching methods in general and higher art (music) education in Ukraine and abroad. Using the methods of generalization and comparison, the article analyses the theoretical and practical foundations of integrating digital technologies into higher art (music) education, which allowed us to formulate several advantages and disadvantages of introducing digitalization elements into music education.

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29 Özer, Zeynep, and Rasim Erol Demirbatır. "Examination of STEAM-based Digital Learning Applications in Music Education", *European Journal of STEM Education*, vol. 8, no. 1, 2023, p. 2. https://doi.org/10.20897/ejsteme/12959

30 Lv, Hua Zhen, and Junyi Luo. "Creative approaches in music teaching: Possibilities of Web 2.0 technologies", *Thinking Skills and Creativity,* vol. 40, 2021, 100840. https://doi.org/10.1016/j.tsc.2021.100840

31 Mandanici, Marcella, Simone Spagnol, Luca Andrea Ludovico, Adriano Baratè and Federico Avanzini. "*Digital music learning resources*", Springer Nature Singapore, 2023. https://doi.org/10.1007/978-981-99-4206-0

32 Park, Young Joo. "Online music education for sustainable development: Analysis of music learning videos in e-Hakseupteo", *International Journal of Music Education,* vol. 40, no. 3, 2021, pp. 340–351. https://doi.org/10.1177/02557614211058800

33 Vizcaíno-Verdú, Arantxa, Paloma Contreras-Pulido and María-Dolores Guzmán-Franco. "Youtube musicians and self-perceived multimedia, hypermedia, intertextual and transmedia competences", *Learning, Media and Technology,* vol. 46, no. 4, 2021, pp. 515–530. https://doi.org/10.1080/17439884.2021.1941099

Based on expert analysis, extrapolation, and forecasting, the use of cloud services, artificial intelligence algorithms, and immersive virtual reality technologies in higher music education is investigated. The study is based on analyzing various sources of information – foreign and domestic scientific works and own research.

Results

The study presents the results of the rapid impact of transformational processes in the music field related to digital technologies. It has been proved that digital tools are changing the methods of teaching music, making them more interactive, practical, and attractive for modern students of higher art (music) education, creating new platforms for demonstrating talent and engaging the audience. Artificial intelligence opens up new opportunities for individualizing music education, adapting curricula to the needs of each student, and improving the efficiency of the educational process. The potential of virtual reality as a tool for interactive music learning and creating immersive concert experiences is determined. It has been proved that modern higher art (music) education is moving towards personalized learning, focusing on developing each student's creative abilities.

Discussion

The entry of national educational institutions into the international educational context is one of the most important trends of our time. UNESCO defines internationalization as a multifaceted process that concerns all aspects of higher education. It involves not only international cooperation but also changes in the internal structure of universities to adapt to the globalized world[34].

Today, when cultural diversity is becoming the norm, education should prepare young people to live in a multicultural society, developing qualities such as tolerance, openness, critical thinking and empathy. In the context of constant changes caused by information and digital technologies, it is necessary to rethink the training of students, particularly in higher art (music) education. Digital tools complement traditional teaching methods and open new opportunities for interactive interaction, independent work and knowledge acquisition. Education is undergoing a digital revolution that opens up new learning opportunities.

[34] Haddad, Wadi, and Alexandra Draxler, 2002.

Quarantine restrictions and military aggression have become serious challenges for traditional forms of education. Digital tools have made it possible to maintain the continuity of the educational process, providing everyone, regardless of geographic location, with access to knowledge. Digital platforms and mobile applications allow higher education students to access educational resources anytime and anywhere, making learning more flexible and convenient[35].

Modern educational technologies allow teachers and students to communicate in online chats, forums, and video conferences, as well as to share files and work together on projects. Moodle and Classroom are just examples of e-platforms that universities use to create an interactive learning environment that promotes the independent work of students and increases learning efficiency. Modern educational technologies like video conferencing platforms like Zoom allow teachers to organize online classes in real-time, enabling two-way communication. Digital whiteboards, such as Jamboard, Explain Everything, and Classroomscreen, transform static presentations into dynamic and interactive ones, allowing teachers to draw, write, create diagrams, and add multimedia elements during class. The Coggle and Mindmeister platforms offer an interface that meets the user's intuitive expectations to create interactive visual diagrams that show the connections between different elements of information[36].

The latest digital learning tools simplify the organizational process and make the learning process more engaging and productive through interactive elements, increasing students' motivation. However, despite all the advantages, such tools also have drawbacks. When assessing the impact of digital technologies, it is necessary to consider both their benefits and potential negative consequences, as shown in Figure 1.

The process of popularizing digital platforms in music education has been evolutionary, going through several stages, each of which has brought innovations and shaped new approaches to learning, from simple access to music materials to interactive platforms for creating and performing music. Scholars note that current educational trends indicate a shift from learning models based on the transfer of ready-made knowledge to models focused on developing students' ability to think critically, solve problems creatively, and innovate[37, 38, 39].

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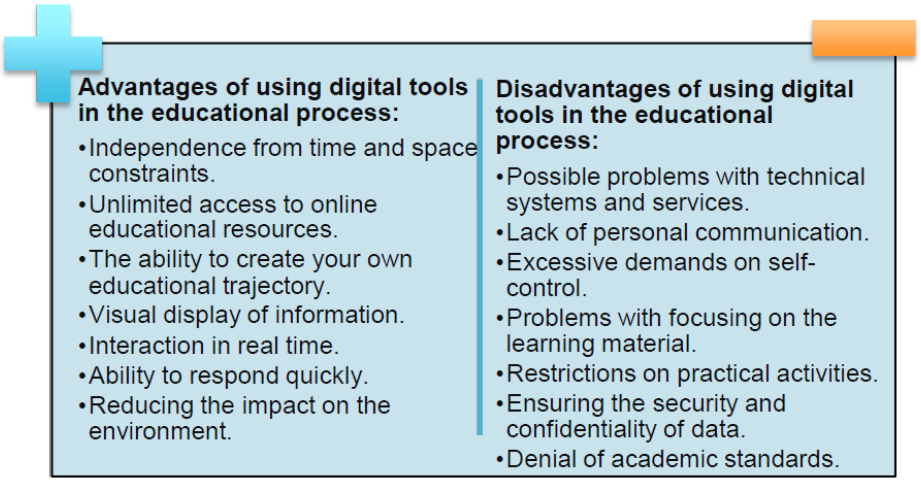
35 Walls, Martin, 2023.
36 Honcharenko, Alla, Nataliia Diatlenko and Olena Poliakova, 2024.
37 Lv, Hua Zhen, and Junyi Luo, 2021.
38 Mandanici, Marcella, Simone Spagnol, Luca Andrea Ludovico, Adriano Baratè and Federico Avanzini, 2023.
39 Shi, Yaoyao, 2021.

Figure 1



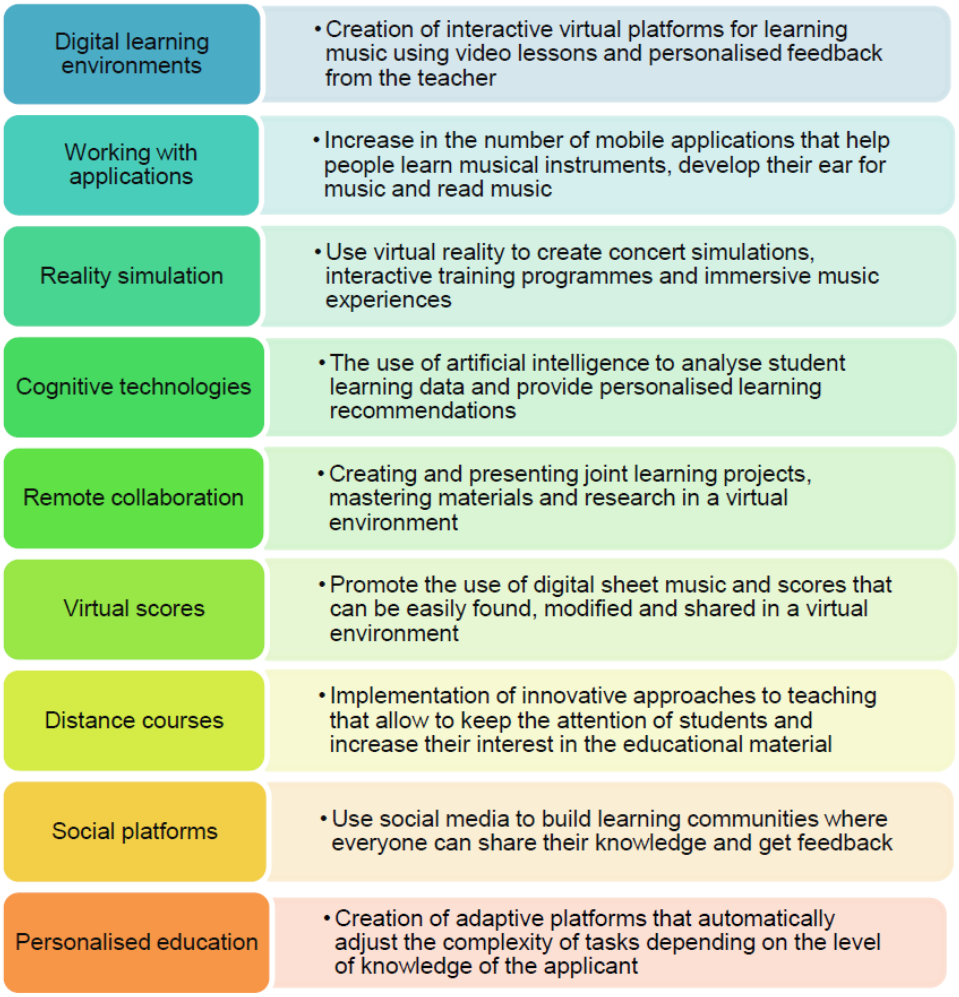
Analyzing the Advantages and Disadvantages of Introducing Information Technology into the Educational Process
Source: compiled by the author based on [40]

The process of popularizing digital platforms in music education has been evolutionary, going through several stages, each of which has brought innovations and shaped new approaches to learning, from simple access to music materials to interactive platforms for creating and performing music. Scholars note that current educational trends indicate a shift from learning models based on the transfer of ready-made knowledge to models focused on developing students' ability to think critically, solve problems creatively, and innovate[41, 42, 43]

Integrating digital technologies into music education allows for personalized learning paths, access to a vast library of musical materials and instruments, and new forms of musical communication and co-creation. Analyzing the data in Figure 2 clearly shows how digital technologies are changing traditional teaching methods in higher art (music) education.

[40] Honcharenko, Alla, Nataliia Diatlenko and Olena Poliakova, 2024.
[41] Lv, Hua Zhen, and Junyi Luo, 2021.
[42] Mandanici, Marcella, Simone Spagnol, Luca Andrea Ludovico, Adriano Baratè and Federico Avanzini, 2023.
[43] Shi, Yaoyao, 2021.

Figure 2



Integrating Digital Technologies into Music Education
Source: compiled by the author based on[44]

The development of cloud technologies in education contributes to creating personalized learning paths and provides continuous access to educational resources, which is critical in the modern world. Thanks to cloud services, students can access learning materials online, download them to

[44] Kyshakevych, Bohdan, Svitlana Kyshakevych and Halyna Stets, 2024.

their devices for offline work, or collaborate on projects in real-time. Cloud services allow teachers to effectively organize the learning process by creating a single space for all the necessary resources. The cloud has made music disciplines more exciting and promising[45].

Absolute Markets Insights forecasts that the use of cloud services in education will grow by 25.4% by 2027, which confirms the trend towards digital transformation of educational institutions. The growing demand for cloud-based solutions in education reflects the general trend towards digital transformation and the search for new ways to improve efficiency. The use of IaaS, SaaS, and PaaS models can reduce the cost of maintaining IT infrastructure, improve access to learning materials and software, and simplify the development and implementation of individual educational solutions, which generally increases the efficiency of managing the educational process[46].

The use of cloud technologies in education, as our research has shown, opens up new horizons for students of higher art (music) education, such as:

- Shared cloud platforms allow students from different parts of the world to join study groups, work together on projects and share knowledge, creating a global learning community.
- Cloud-based platforms can be used to create individual learning paths that match the learner's pace and learning styles, learning rate and cognitive style.
- Cloud-based tools transform the learning process by facilitating close collaboration between students during joint projects and knowledge sharing.
- Cloud platforms provide a convenient tool for online assessment, allowing teachers to receive up-to-date information on the progress of each student and direct training to develop individual abilities.
- Large-scale knowledge repositories provide access to a large number of educational materials, such as audio lectures, videos of practical classes, interactive exercises and assessment tools, which allows students and teachers to organize the learning process effectively.
- The combination of cloud technologies with learning management systems and virtual classrooms will create a single digital space that will provide access to learning materials, collaboration tools and knowledge assessment at any time and from any device.

[45] Tolstova, Natalia, Svitlana Iryhina and Olena Liesnik, 2024.
[46] Semeniako, Yuliia, Olena Fonariuk and Yuliia Chornysh, 2022.

- The ability to scale cloud resources up or down depending on current needs makes them an ideal solution for educational institutions where the number of students may vary throughout the academic year.
- A wide range of tools available on cloud platforms, such as textual materials, audio recordings, video tutorials and interactive exercises, allows the creation of a variety of learning scenarios that meet different learning styles and cognitive needs of students.
- The transition to the digital world requires new knowledge and skills from musicians, and the integration of cloud technologies into music education provides students with the necessary training, allowing them to work effectively with music software, store and share materials online, and collaborate with colleagues from around the world.
- By providing learners access to a vast library of online courses, interactive learning materials, and communities for sharing experiences, cloud technologies turn learning into an engaging and continuous process that encourages musicians to continuously develop and improve themselves[47].

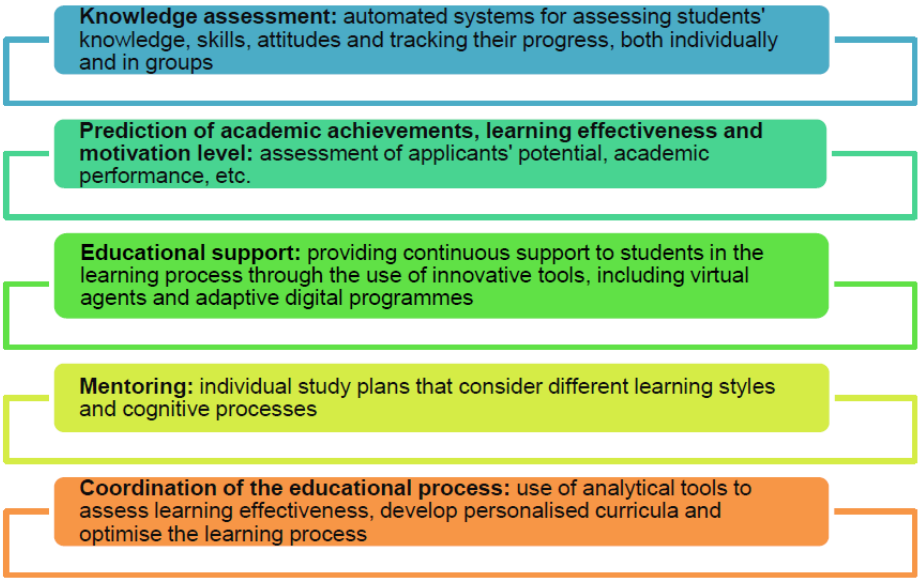
The use of cloud technologies in higher music education allows for the creation of an interactive learning environment that provides access to many musical materials, tools for creating and editing music, and opportunities for real-time collaboration with teachers and fellow students. Thanks to these tools, students can study music at a time and place convenient to them, developing their creative independence and acquiring the necessary skills for self-realization in the digital world.

Artificial intelligence is also becoming indispensable in higher art (music) education. It helps to track each student's progress in detail, analyze their results, and predict further success, allowing teachers to select individual approaches to teaching. To ensure the high quality of training, the educational environment of higher education institutions must constantly evolve in line with changes in the information space, providing students with access to modern information resources and tools for learning and research.

Today, artificial intelligence is one of the most essential tools for developing higher art (music) education, reflected in both the educational process and research (Figure 3).

[47] Tolstova, Natalia, Svitlana Iryhina and Olena Liesnik, 2024.

Figure 3



Applying Artificial Intelligence Technologies in the Educational Process in the Field of Higher Art (Music) Education
Source: compiled by the author based on[48, 49]

The development of information activities for music education students is impossible without effective social communication between all participants in the educational process, which requires changing the content of education, introducing new interaction methods and creating a favorable environment for exchanging information and ideas. Artificial intelligence in this field of education should be aimed at creating learning environments where each student receives optimal conditions for developing their talents while eliminating knowledge gaps[50].

Artificial intelligence offers a variety of tools and techniques for learning music. Chordify, a machine learning platform, offers an innovative approach to learning to play musical instruments by providing real-time chords to any song. The wide selection of chords on this platform allows students to learn music at their own pace and according to their interests, which increases learning efficiency.

[48] Crompton, Helene, and Diane Burke, 2023.
[49] Ouyang, Fan, Luyi Zheng and Pengcheng Jiao, 2022.
[50] Drach, Iryna, Olha Petroye, Oleksandra Borodiyenko, Iryna Reheilo, Oleksandr Bazeliuk, Nataliia Bazeliuk and Olena Slobodianiuk, 2023.

AI is also at the heart of platforms such as Yousician and Melodics. Using artificial intelligence, these platforms provide musicians with a personalized approach to learning. AI algorithms analyze the performance of exercises, provide detailed feedback, and adapt the learning material to the needs of each student. As a result, the learning process becomes more dynamic and interactive, contributing to better learning and developing creative abilities[51].

Zenph and The Music Room use artificial intelligence to analyze famous musicians' playing styles and teaching methods, creating interactive environments that allow students to model their learning methods. Virtual mentors that mimic the teaching style of legendary artists allow students to immerse themselves in the atmosphere of creativity and gain a unique experience of learning from masters. These platforms allow musicians to study at their own pace and time, receive feedback from experienced teachers, and communicate with other musicians worldwide.

Virtual reality opens up new possibilities for music education, allowing students to practice in virtual concert halls, record their music in virtual studios and interact with virtual musicians. These technologies create conditions for deeper immersion in musical material and the development of practical skills necessary to work in the music industry. By immersing themselves in virtual reality, musicians can create dynamic visual compositions synchronizing with the music, creating a unique multisensory experience. For example, virtual reality technology allows students to visualize sound waves, analyze the structure of musical compositions, and experiment with various musical instruments and equipment, contributing to a deeper understanding of musical processes and developing practical skills. Virtual reality allows students to engage in virtual learning activities, conferences and practical work, which contributes to developing their communication and collaboration skills[52].

The gradual introduction of digital platforms in music education has undergone several stages of development, each of which has its characteristics and contributes to the transformation of the educational process, changing approaches to teaching students and expanding opportunities for their creative development. Scientists emphasize that modern education aims to develop critical thinking, creativity and independent learning, replacing passive learning with active participation in the learning process[53].

The emergence of digital audio workstations such as Garage Band and Soundtrap has radically changed how musicians create, record and process sound, giving them unprecedented control over the creative process. With

[51] Kyshakevych, Bohdan, Svitlana Kyshakevych and Halyna Stets, 2024.
[52] Onderdijk, Kelsey E., Lies Bouckaert, Edith Van Dyck and Pieter-Jan Maes, 2023.
[53] Prasad, Ramjee, and Purva Choudhary, 2021.

GarageBand, developed by Apple, recording music and creating melodies and arrangements is possible. The software includes various virtual musical instruments, from classical pianos to exotic synthesizers, and many sounds processing effects, allowing music creation in any genre. Developed by Spotify, Soundtrap is an intuitive music creation tool that allows beginners and professionals to realize their creative ideas. Soundtrap's cloud storage feature turns the music creation process into a collaborative adventure, allowing musicians to share ideas and make changes to a project in real-time, regardless of geographic location. The rapid and widespread adoption of Soundtrap by educators demonstrates that the platform meets the current needs of modern music education[54].

The growing role of digital technologies in society is challenging music education to develop new approaches and teaching methods that will enable students to use modern instruments and software effectively. The growing role of technology in education places new demands on teachers, who must possess pedagogical knowledge and be competent users of modern digital tools. As noted in the study by Buchborn and Treb[55], today, to successfully integrate technology into music education, it is necessary to work closely with developers, involving music teachers in creating new tools and programs.

The personalized approach provided by integrating digital technologies into modern higher art (music) education creates an educational environment that meets the needs of each student, allows them to develop their creative potential more effectively and prepares them for the challenges of the modern world.

Conclusion

The digital transformation of higher art (music) education is a complex process that opens up new opportunities for educators to use innovative technologies in teaching, but at the same time, poses several challenges for them related to the need to adapt curricula, develop new teaching methods and ensure a high level of education for all segments of the population. A deep understanding of the advantages and disadvantages of any phenomenon or process is the basis for making informed decisions that allow us to maximize the positive aspects and minimize the negative consequences.

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[54] Zheng, Dali, and Yange Wang. “The Application of Computer-Aided System in the Digital Teaching of Music Skills”, *Computer-Aided Design and Applications,* vol. 19, no. S7, 2022, pp. 154–164. https://doi.org/10.14733/cadaps.2022.s7.154-164

[55] Buchborn, Buchborn, and Johannes Treb. “Acting self-determined and critical in a post-digital future? A critical review on digitalization in music education”, *Culture, Education and Future,* vol. 1, no. 1, 2023, pp. 66–82. https://doi.org/10.5281/zenodo.8010504

The use of cloud technologies for data storage, processing, and analysis allows young researchers to focus on the creative component of research, increasing the efficiency of their work and contributing to qualitatively new results. Cloud-based platforms also allow musicians to collaborate in real-time, create joint projects, and receive feedback from teachers and other musicians, stimulating musical communication and the exchange of experience.

Modern higher education increasingly relies on artificial intelligence algorithms to drive its digital transformation and use it to analyze large amounts of student data, optimize the learning process through individualization and automation, create personalized curricula, model real-world situations, and analyze the effectiveness of the educational process using big data. The combination of large amounts of data, robust computing systems and efficient machine learning algorithms allows for the creation of artificial intelligence models that can learn and make human-level decisions, which requires society to rethink traditional approaches to work, learning and social relationships. Artificial intelligence is the driving force behind the digital transformation of education, significantly affecting teaching methods, the organization of the educational process in general, and research in pedagogical technologies. However, its implementation is accompanied by specific difficulties that require further study.

An analysis of digital platforms in music education shows that they can make the learning process more flexible, interactive and practical, meeting the diverse needs of modern music students. The optimal combination of digital tools and traditional teaching methods allows not only to increase the efficiency of the educational process but also to make it more exciting and diverse.

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