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The Role of Current Computer Technologies in Developing Professional Competence of Music Teachers: A Model of a Personalized Educational Environment

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Abstract: *The importance of the article lies in the fact that the profession of school music teacher today needs to create its own updated competence model of personal educational environment taking into account digital transformation and computerization of general education. The information competence of the music teacher, the issues of his professional development in working with music and computer technologies are taken into account. Analyzed the possibility of building a personal educational environment in the era of postmodern (including electronic) and their application in further professional activities. The author analyzes the possibility of introducing modern computer technology as a resource for the formation of musical needs of the teacher of the educational institution. In addition to professional competencies, some general requirements for music teachers today, which can be grouped into four groups: general professional, communicative, behavioral and analytical. The article presents a model of university music education in the postmodern era; ways of acquiring professional competence of a music teacher are considered; the stages of creating a model of personal educational environment of a music teacher in the postmodern era are described; the role of professional competence of a music teacher in the postmodern personal educational environment model is defined; the role of current music and computer technologies (MCT) in creating a model of personal educational environment of a music teacher was determined.*

Keywords: *Information and computer technology, knowledge, abilities and skills, electronic environment, professional tasks and priorities, music and computer technology.*

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Introduction

The general education institution of the XXI century was marked by changes in the methods of information transfer and presentation: information and computer technologies are gradually introduced in all fields of science, especially in the sphere of music creation and music pedagogy, which increase the professional competence of the music teacher, deepen and help him create a model of personal educational environment in the postmodern era.

Creating a model of personal educational environment in the postmodern era should affect the system of general music education, which requires changes in accordance with the needs caused by the development of the information society. The use of information technology in the educational process in the model of personal educational environment in the postmodern era gives the teacher more opportunities in the lesson, makes the lesson more attractive because it is better remembered, becomes more interesting, and the methodological possibilities of the lesson enriches music lessons with innovations in accordance with the current level.

Drahaytsev (2008) and Kabryl (2013) prove in their scientific works that by introducing distance technologies in the educational process, it is possible to create a new model of professional training of future music teachers, meeting the requirements of today's socio-cultural realities and global trends in education. According to Lozova (2002) and Pastushenko (2013) is one of the most pressing problems of modern pedagogical research on the modeling of professional education of music teachers today is the problem of improving the arsenal of methodological tools and techniques that increase the effectiveness of the educational process. Foreign researchers (Wachi et al. 2007; Nerubasska & Maksymchuk, 2020) believe an advantage in the postmodern era personal educational environment model is an improved system of musical language and musical writing. Through Music-Computer Technology (MCT), music becomes accessible and understandable to every student.

The model of acquisition of professional competence of a music teacher reflects the conceptual definitions of learning technologies, including distance and coordination of the teaching team, leading different courses and disciplines. In addition, a close combination of the essence of theoretical and practical lessons, interests and needs of students in pedagogical and creative work and practical aspects of work are taken into account to achieve the desired learning outcomes.

The purpose of this article is to present a model of music arts teacher training in higher education institutions in the postmodern era; to explore ways of acquiring professional competence of a music arts teacher; to describe the stages of creating a model of personal educational environment of a music arts teacher in the postmodern era; to determine the role of professional competence of a music arts teacher in the model of a personal educational environment in the postmodern era; determining the role of current music and computer technologies (MCT) in creating a model of personal educational environment of a music teacher.

The model of training of teachers of musical art in higher education institution

In the current model of university education of music teachers great importance is given to the integration of distance and face-to-face training. Using distance technologies in professional training of specialists should be dominated by interactive and problem-based methods of teaching music students, which leads to the individualization of the learning process and the formation of the ability to apply the acquired knowledge to solve professional problems and the ability to make responsible decisions. Passive perception of information at lectures is replaced by personal involvement of students in the learning process due to problem tasks, cases and other forms of work in a digital educational environment. Basically, the practical tasks given to students during distance learning encourage students to work with their minds, their statements, personal opinion, using their own talents and from self-selected version of an algorithm to finding an individual solution to a pedagogical problem (Kabryl, 2010).

Thus, the use of distance technology in educational activities helps to simulate the system of professional training of future music teachers, which meets the modern requirements in the field of education. Modeling is such a method of scientific cognition of the learning process, which allows you to see the advantages and disadvantages of the educational system as a whole and its individual components.

One of the most pressing problems of current pedagogical research on the modeling of professional education of music teachers is to improve the list of methodological tools and techniques that can improve the effectiveness of the learning process. Present pedagogical practice makes it clear that the integration of the use of distance learning forms in the professional training of future music teachers allows to solve two main problems of training specialists in the field of music pedagogy, culture and art: their mastering of musical-performance skills of interpretation of

modern music works and the use of electronic teaching tools and music and computer technologies (Chunpen, 2013).

The scientific and methodological base in the field of application of new multimedia and digital technologies, which should be mastered by the music educator, is poorly developed in the domestic music-performance pedagogical practice. The skills of using music and computer technologies and electronic educational resources in today's educational process is the most important competence of a specialist in any field of activity, moreover, in most spheres of public life this competence is essential and complex. success of practical professional functions. This competence is also necessary for a music teacher, who should conduct music lessons in current schools using multimedia and digital technologies.

To identify the abilities and skills of a music teacher, it is necessary to make an analysis of already existing scientific and methodological concepts and regulations on professional competencies of a music teacher, as well as current problems of current music pedagogy in general (Pastushenko, 2013).

Present-day educational standards of professional training of music teachers describe in detail all constituent mainly psychological and pedagogical and musical-performance skills and abilities necessary for a specialist to conduct pedagogical, methodological and cultural-educational activities, including highly artistic performance of vocal works of various styles and directions.

In addition, a graduate of a music-pedagogical higher education institution must have developed musical abilities - harmonious and harmonic hearing, rhythmic sense, musical memory and thinking. In the process of formation of the musical and performing skills of the teacher, starting from the first stages of training, the music and computer technologies are widely enough applied; concert and performing, touring activities of the teacher-musician and conducting music lessons in educational institutions do not do without them (Hughes, 2001).

However, most graduates of music and pedagogical universities are unable to apply multimedia and digital technologies in their professional activities - both performing and teaching.

This is due to the fact that information competencies are now becoming an integral part of the general culture of today's man, but are not considered when designing models of educational programs or are on the periphery of scientific interests of pedagogical methodologists. The use of distance learning along with face-to-face training is designed to solve this problem.

Ways of acquiring the professional competence of a music art teacher

Professional competence of a music teacher is acquired through the development of a model of professional education of a music teacher, which defines the organizational and pedagogical conditions for achieving the planned learning outcomes and describes the arsenal of tools and methods used in the implementation of the educational program. The model of acquisition of professional competence of a music teacher reflects the conceptual definitions of learning technologies, including distance learning, and coordination of a whole team of teachers leading different courses and disciplines. In order to achieve the desired learning outcomes, the interrelation of the content of theoretical and practical lessons, interests and needs of students in pedagogical and creative work and practical aspects of work should be taken into account. In the end, the developed model should contribute to the development of "competitive, theoretically and practically competent people seeking education" (Thompson et al., 2001).

The purpose of the formation of professional competence of a music art teacher is to train and develop the personality of a music art teacher who has the whole complex of professional and personal qualities and competencies, developed musical skills and motivation and comprehensively leads productive activities in its various spheres: pedagogical, methodical and cultural and pedagogical. Accordingly, the desired learning outcomes should be general cultural, general professional and special professional competencies of a music teacher (from general pedagogical to musical-performing) in accordance with the competency paradigm of education. Formation of professional competence of a music art teacher is a versatile intellectual and creative development of the student, acquisition of systemic knowledge, abilities and skills necessary for the formation of mastery.

New educational technologies should be woven into a unified system, which should be holistic, multi-component, logically structured, structurally and functionally differentiated and model the formation of professional competence of a music teacher.

The development of the model of music teacher professional competence training is implemented in such a way that it proceeds from the present-day educational paradigm, which is characterized by the following features (Strohal, 2017):

1. The main subject of the educational system, its main advantage becomes the learner himself, and the comprehensive development of his intellectual and creative abilities and the formation of professional and

personal qualities and competencies determines the ultimate goal of designing the educational process.

2. A special advantage are interactive forms of learning, such as; work in groups, collective discussion, lecture-discussion, business and role-playing games, design, distance learning, training and seminar, problem-solving (case-method) - all these methods produce the ability to freely interact with people.

3. Set of disciplines and educational programs is selected so that their assimilation provides formation of universal competences in accordance with program orientation.

4. The main objective of the teacher becomes formation of the independently thinking person of a new formation with a high degree of cognitive activity, capable to satisfy the interests and needs as the major quality of the person in the XXI century is receptivity to new knowledge, readiness to solve problem problems, to express own views, to generate new ideas.

5. In the epoch of informatization one of the universal competences of a specialist in any sphere of activity is mastery of methods of obtaining and processing information, "therefore there is a need to improve the efficiency of current education system functioning on the basis of new information technologies".

6. Transformation of the whole system of education in the direction of individualization of learning and independent learning and creative activity of the student with pedagogical support and correction.

Thus, the model of professional training of a future music teacher should be focused on a socially significant prototype of personality, ready for free creative self-development and productive activity in the changing conditions of modern socio-economic life (Leins et al., 2011).

The most important principle of designing the model of formation of professional competence of a music art teacher is its compliance with the goals, objectives, functions and planned results of professional activity taking into account the dynamics of changes in various sectors of society. In other words, the model of formation of professional competence of a music art teacher is oriented to the model of professional activity of a specialist, which reflects the qualification characteristic. That is why the content and structure of the educational process in a pedagogical university should ensure the formation of a professionally competent music teacher who is ready to successfully solve their professional tasks.

The role of current music and computer technology (MCT) in creating a model of personalized learning environment for the music teacher

When such a model of personal learning environment is implemented in the postmodern era, the learning process becomes more cognitive, innovative, and engaging for the student. Students can use technology for deeper levels of their understanding and improvise. Teaching musical notation, musical language, musical terms, and playing a musical instrument becomes not something special or complicated (what they teach in music schools), but accessible and understandable. Each lesson becomes a discovery of some new idea, a comprehension of new knowledge. Nowadays general music education is no longer limited to singing by ear, without learning musical writing and mastering an instrument. Moreover, information technology helps to understand not only music and musical literacy, but also to master the personal computer. In this regard, there is a new direction in the model of personal educational environment in the postmodern era, in the school of the XXI century - music and computer technology (Śliwa et al., 2021).

Current music and computer technologies (MCTs) in the model of a personal learning environment in the postmodern era give every student the opportunity to interact with music, which was never the case in the past. They open up tremendous prospects for the school music education system. MCTs make interactive communication with music available to any student population, age, social status, and degree of musical ability.

The advantage of the personal educational environment model in the postmodern era is an improved system of musical language and musical writing. Through MCT music becomes accessible and understandable to every student. With the help of general music education there is an opportunity to expand the educational spheres in general and to form positive qualities of personality and development of features (multidimensional thinking, development of coordination of movement when playing an instrument with two hands, reaction speed, concentration of attention, creativity, integration - principles of bilateral connection of musical activity and close to it according to psychological parameters non-musical types of activity are developed).

The development of MCT in general education in the model of personal educational environment of a music art teacher in the postmodern era, wide application, demand allows us to talk about the development of a new educational environment, which includes (Kozyr, 2009):

1) a music computer as the main element of the hardware and instrumental base of the new educational environment and the software of the music computer educational complex;

2) the methodological system and its methodological basis, allowing adequate use of MCT at all stages and in all directions of the musical-computer process;

3) socio-computer factor of education of a fully developed personality.

For successful management of music learning action today's teachers need to use not traditional ways of working, musical instruments, but also the latest electronic musical instruments (EMI), a music computer (MC) and MCT programs. Because of the clear number of seats in the MCT classroom (according to State Standard only 12 computers are allowed, so there is always a maximum of 12 students in the classroom) the teacher has the opportunity to focus on individual assistance to the students, handing out individual creative tasks. Also in the multimedia classroom there are new requirements for the music teacher (Pastushenko, 2013).

Regardless of what field of knowledge the teacher is involved in, one of the key features of the modern specialist is his information competence.

Today's music teacher needs to be fully proficient in ICT and ready to use it in professional practice. This requires, in addition to basic PC knowledge, also knowledge, skills and abilities to work with sound and multimedia based on information technology and ICT. The music teacher must not only possess musical performance data, mastery of traditional musical disciplines, but also have pedagogical competencies in the integration of information knowledge and skills in working with sound and multimedia in professional practice.

Students can use MCT to realize their creative ideas, communicate their ideas to others and discuss them, students have the opportunity for independent creative work and improvisation (Poluboyaryna, 2008).

The present-day music lesson in a secondary school abounds with new pedagogical techniques at almost all its stages. With the help of the possibilities of the MCT class the teacher can more quickly teach students to work independently, arousing a great interest in their subject, to introduce the student to the creative process when the child sees the result of his or her work, appreciated by the teacher. MCT at music lessons in a secondary school is an individual approach to each student, a way to improve the quality of the educational material and enhance the educational effects, the possibility of creating and applying multilevel tasks at the lesson; teaching

music on the basis of MCT implies multivariate use of didactic techniques and teaching methods within the framework of a single lesson.

Studying any topic at a music lesson in a secondary school with the help of MCT allows not only listening to music in records, viewing fragments of video recordings, but also allows open access to a large block of information related to the world of art - painting, music, literature. , choreography, and theater. The subject of MCT also has a great influence on the child's personality. According to studies (see, for example, works [3; 4; 5; 6]), as well as based on the results of our teaching experience, we can confidently state that children who studied the developed programs for the MCT class in a general education school have higher learning outcomes in musical art and other disciplines.

Thus, we can talk about MCT as an extremely effective and useful tool in the pedagogical activity of a music teacher, MCT allows developing a cognitive process in which the student acts actively, gets involved in the process of independent search and discovery of new knowledge, solves questions of problematic, creative, research nature (this provision is actively confirmed in ongoing research conducted by innovative teachers, music teachers, scientists; see, for example, works). Only with the student's active attitude to the cause, his direct participation awakens interest in music, art, and in the future - to independent activity outside the classroom and school.

The role of professional competence of a music arts teacher in the model of personal educational environment

The school of the digital century requires professional competence of a music teacher, creation of a postmodern model of personal educational environment. Practice has shown that the most optimal variant of formation of musical disciplines teacher's readiness to conduct educational activities in a distance format is creation of professionally directed digital educational environment of a musician teacher. Considering the specifics of a music instructor's work in a digital creative educational environment, focus on the peculiarities of conducting educational activities of a teacher of electronic musical instrument, largely determining new approaches and methods of conducting educational activities built on the use of digital and modern music and computer technologies (Falko, 2008).

The new reality poses the question to the modern teacher of the continuous process of obtaining knowledge. It is important for work, for harmonious existence in the profession. The information and educational environment of a teacher's professional activity includes many aspects: these are communication resources, digital platforms, websites and e-mail, digital

whiteboards, and many others. To conduct successful classes remotely it is necessary to use all digital opportunities.

For example, messengers Viber and WhatsApp are useful for organizing interaction both with colleagues and with students and parents. On the basis of the digital platform it is convenient to conduct classes offline with detailed instructions, tests and videos. Online classes are conveniently conducted either on Skype or Zoome. A site for organizing classes, lectures and concerts online can be indispensable in a teacher's work. Through Padlet digital whiteboard you can introduce useful materials, organize concerts. Core-based lessons can be done with different types of electronic resources (Strohal, 2017).

However, one of the most significant problems of conducting classes in musical disciplines remotely (the process of implementing the educational process in a children's art school and especially - at the initial stage of the learning process) remains the problem of quality of both individual lessons to teach performing skills on a special (in our case - electronic.) a musical instrument, and the organization of group forms of classes (especially - ensemble music making, choral class, composition, listening to music, etc.).

First of all, a number of problems associated with the synchronism of sound reproduction, with the features and quality of the musical sound transmitted to the distance and many problems of this kind, combined with the implementation of the process of creation and perception of the synthesized musical sound-timbre.

New educational approaches and methods of work in the functioning of information creative educational environment, characterized by the creation of digital content (relevant electronic educational resources and teaching materials with methodological support in the network educational space and interactive network educational system for the implementation of the process of learning music are important. New approaches to the organization of educational work with the participation of MOODLE distance learning system are implemented in the MCT "Music and Computer Technology" in the education system (Berbets et al., 2021).

Focusing the attention of teacher-researchers who carry out the music education process in new conditions on the fact that today's music education requires new, other than traditional methods and forms of conducting music lessons, approaches and technologies (for example, active use of visual media), which, in turn, is the impetus for appropriate research in the field of music science and related scientific areas of humanities and natural science profiles. The formation of a comprehensive scientific

approach to the system of modern music education based on socio-cultural research and the achievements of modern information and music and computer technologies predetermines the possibility of formation of profound in content fundamental training of a teacher of musical disciplines, capable of conducting successful professional educational activities in the modern information educational environment.

A fundamentally new approach to teaching children music comes from the specifics of electronic tools - the use of a variety of complementary methods and forms of concentration of educational and educational activities.

Personally-oriented approach to each child comes from the musical abilities and motivation of the students. A training plan is developed for the children, which allows them to learn the program ahead of time, more in-depth, more complex repertoire is selected, and the interests and wishes of the child are taken into account.

New forms, methods and technologies are used to achieve results (Behas et al., 2021).

- new forms and technologies: learning the basics of harmony, musical form, instrumentation, learning special terminology related to the specifics of working on the EMR, working with the instrument interface, basic menu, functions, editing built-in settings of some banks - work with CHANNEL channels while creating variation and editing sound style; work with files, the ability to create custom settings, programs, basics sound directing work with the mixing console - balance, effects, sound processing; work with the bank register, work with external devices: pedal settings, flash memory, connection to a computer; work with music and computer programs; access to the Internet;

- didactic materials: author's teaching aids and developments, electronic textbooks and developments, electronic educational resource (EER), work with music sites, possibility to upload to the synthesizer, new voices, styles, music files;

- systematization and deepening of student knowledge when performing tasks in different subjects (Informatics and electronic music synthesizers) allows students to use new ways of working with information: transferring previously passed actions to other content, awareness of the relationship between different subject areas. This integration improves the quality of the learning process: - activation of mental and cognitive activity is developed; ideas about the integrity of the world are formed due to the transfer of ways of action from one object to another, characteristic of

interdisciplinary links; academic performance is formed as a quality of students' personality;

- the main results of the program are related to: recording songs and "live" performances of students on electronic media - USB, CD, MP3 discs, digital video cameras, etc.; participation in radio and television projects; creation of musical design for the website of the institution.

Digital synthesizer, EMI is a current hardware and software complex that includes technical tools and software used to solve musical and informational tasks. Students acquire technological skills to control electronic tools, consolidate their knowledge in computer science (integration of knowledge of different branches) (Pastushenko, 2013).

The basis of learning in EMI is the process of creative activity, contributing to the involvement of students to create an electronic music project, encouraging reflection, thinking.

Conclusions

The result of the study is that the article presents a model of music teacher education in the university and concluded that current educational standards related to professional education of music teachers require predominantly psychological and pedagogical components and musical performance skills and abilities necessary for a specialist to carry out teaching, methodological and cultural and educational activities, including highly artistic performance of vocal works of different styles In addition, the model of a graduate music and pedagogical college turned out to be necessary to develop musical abilities - pitch and harmonic hearing, rhythmic sense, musical memory and thinking, music computer technology should be spread. Ways of acquiring professional competence of a music teacher are also investigated, since the development of professional competence of a music teacher is to train and educate the personality of a music teacher who has a full range of professional and personal qualities and competencies, developed musical abilities and motivation, comprehensively prepared to implement its areas - pedagogical, methodological and cultural and pedagogical. Also described the stages of creating a model of personal educational environment music teacher in the postmodern era. Today's music and computer technology in the model personal educational environment of the postmodern era give every student the opportunity for interactive communication with music, which was not the case in the past. They open up great prospects for the school system of music education. ICT makes communication with music available interactively to all groups of students, age, social status and musical abilities. defined the role of

professional competence of the music teacher in the model of postmodern personal educational environment, which gave rise to a new direction in the model of postmodern personal educational environment.

The article presents a model of university education of a music teacher in the postmodern era; The ways of acquiring professional competence of a music teacher are considered; the stages of creating a model of personal educational environment of a music teacher in the postmodern era are described; the role of professional competence of a music teacher in the postmodern personal educational environment model is defined.

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The Authors 2,3 investigated the ways of acquiring professional competence of a music art teacher.

The Author 4 described the stages of creating a model of personal educational environment of a music arts teacher in the postmodern era.

The Authors 5,6 identified the role of current music and computer technologies (MCT) in creating a model of a personalized learning environment for the music teacher.

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