

Koryakin Olexiy

PhD in Pedagogy, Department of choral conducting, vocal and methodic of musical education, teacher,
Sumy state pedagogical University named after A.S. Makarenko, Sumy, Ukraine
prof_extreme@mail.ru
ORCID: 0000-0002-3084-8796

**USE OF MULTIMEDIA TECHNOLOGIES IN THE PROCESS OF TRAINING OF
FUTURE BACHELORS OF MUSICAL ART**

Abstract. The article is devoted to the methodological principles of the use of multimedia technologies in the process of professional training of future bachelors in the specialty «Music Art». The general conditions of multimedia education for future bachelors of music art, the main stages of the use of multimedia technologies in the process of professional training and the methodical principles of the development of classes with the use of various multimedia technologies in the process of teaching the cycle of professional training are given. The article contains general characteristics of courses of the cycle of professional training «Musical acoustics and basics of sound processing» and «Fundamentals of sound recording», a list of topics from their content, as well as examples of use in the process of teaching these courses of various multimedia technologies and programs. Also, the article defines the stages of the use of software in the process of learning the courses from the cycle of professional training, the methodological basis for developing classes with the use of multimedia technologies, the main conditions for the use of multimedia learning tools in the process of training future bachelors of music art. The emphasis is placed on the importance of using of multimedia technologies and software in the process of training the future bachelors of musical art.

Keywords: Multimedia; Music Art; Sound Processing; Sound Recording; Power Point; Adobe Audition; Steinberg Cubase; Professional Training; Bachelor of Music Art

Substantiation of the relevance of the problem.

The current level of development of multimedia technologies has led to their integration into all spheres of public life, including in all levels of education. In conditions of total informatization and virtualization of the society, mastering the methodology of using multimedia technologies is of particular importance in the system of training future specialists in higher education institutions. The multimedia acquisition of professional competencies significantly influences the efficiency of the process of professional training at universities, in particular, in artistic specialties. The technologization and informatization of the process of professional training causes its intensification, individualization, and also stimulates the development of a modern educational environment based on the active use of multimedia learning tools. The widespread use of multimedia learning tools is especially important for the specialty «Music Art», as a modern artist in the process of professional performance is directly related to the use of various multimedia technologies. Accordingly, methodological substantiation of measures for the implementation of legally determined and socio-historically stipulated requirements for the use of multimedia technologies in the process of professional training of future bachelors of music art in modern educational institutions of higher education becomes especially relevant.

Analysis of scientific research. The aspect of the use of various multimedia technologies is sufficiently investigated in scientific and scientific-methodical literature. At the legislative level, the priority of the development of education is the introduction of modern information and communication technologies, which ensures further improvement of the educational process, accessibility and efficiency of education, training of the younger generation for further activities in the information society. The content of the concept of multimedia in the discourse of education is devoted to the works of P. Agnew, A. Kellerman, J.Meyer (Agnew, Kellerman & Meyer, 1996), the specification of the properties of multimedia is highlighted in the scientific work of R. Fetterman (Fetterman, 1997, p. 98), the

aspect of multimedia learning is revealed in the scientific works R. Mayer (Mayer, 2001), M. Neo, T. Neo (Neo & Neo, 2000), the peculiarities of the software used in the process of learning music are covered in the scientific articles by M. Sedláček (Sedláček, 2010, p. 34) and others. However, in the studied scholarly works, the aspect of the use of multimedia technologies in the discourse of the future bachelor's degree in music art is not sufficiently highlighted, that's why this problem is relevant.

The purpose of the article. Accordingly, the purpose of the research is to specify the methodological principles for the use of multimedia learning tools in the process of training future bachelors of music art. The objectives of the research were to determine the justification of the methodology of using the software for ensuring multimedia competence acquisition, the application of computer programs in the process of mastering the training courses from the cycle of professional training, and also the specification of the conditions of multimedia training for students of the specialty «Music Art».

Presenting main material. One of the foundations of the modern world and the existence of a post-information society is multimedia technologies. The main advantage of multimedia technology is that they are activating many of the audience's feelings, that is, they are multi-sensory. And since such technologies are mostly interactive, it is possible to manage the content of information (Neo & Neo, 2000). In the discourse of learning multisensory involves a combination of visual, auditory and tactile sensations to create complex images. Accordingly, the components of multisensory learning are visual, audial (auditory) and tactile (physical), therefore, the impact of educational multimedia technologies should be directed to the activation of these components. Obviously, the use of multimedia technologies facilitates the development of students' interest in learning, communication skills, interaction between the student and the teacher, enhances the educational impact, the variability of the training courses, etc. Accordingly, in comparison with traditional educational technologies, multimedia technologies have a large number of advantages. Thus, changes in the content and teaching methods, in particular, future bachelors of musical art, taking into account the importance of information multimedia technologies, are currently relevant.

In the process of mastering the disciplines of the cycle of professional training in accordance with the curricula of the Educational and Scientific Institute of Culture and Arts during the first four semesters of training, future bachelors of full-time art of musical art study courses «Musical Acoustics and Basics of Sound Processing» and «Fundamentals of Sound Recording», which are taught in accordance with the developed the author of educational and methodical complexes. For future Bachelor of Music in Higher Education for a shorter term, these training courses are taught during the first two semesters. Since the students already have basic professional training, the courses «Music Acoustics and Basics of Sound Processing» and «Fundamentals of Sound Recording» are taught for them in an intensified format and contain, respectively, 4 lectures and 15 practical lessons and 3 lectures and 16 practical lessons.

The course «Music Acoustics and Basics of Sound Processing» for students of the reduced period of studying in the specialty «Music Art», the subject of which are the theoretical and methodological foundations of the and sound processing, the features of the director of the recording, necessary for future professional activities as an artist and vocalist, as well as features of sound processing in different conditions, includes the following topics: «Sound processing as an original kind of artistic creativity»; «Concept of musical acoustics»; «Fundamentals of acoustics of premises»; «Basics of Stereo»; «Features of acoustics of musical instruments»; «Acquisition of modern musical and technical stage complex»; «Acoustic systems»; «Amplifiers of sound frequency»; «Mixing consoles»; «Microphones». «Devices of spatial and modulation signal processing»; «Means of commutation equipment»; «Organization of elements of the sound - technical complex in space»; «Musical - technical

equipment of modern stage complexes»; «Features of commutation equipment of sound technical complex»; «Fundamentals of work of the sound engineer with the mixing console»; «Features of musical acoustics and sound processing of concerts in small halls»; «Specificity of sound processing of concerts in large halls»; «Music acoustics and sound processing of open-air events»; «Criteria for assessing the quality of mixing of varied signals»; «Sound processing of performances on stringed musical instruments»; «Sound processing of performance of wind musical instruments»; «Sound processing of performance of percussion musical instruments»; «Life - Sound processing of Vocal Performance»; «General patterns of sound processing of classical music»; «Sound processing of pop music»; «Sound processing of rock music»; «Musical acoustics and sound processing of spectacular arts»; «Sound processing of television»; «Sound processing analysis of musical tracks».

The course «Fundamentals of sound recording» for students of the shortened period of study specialty «Music Art», the subject of which are theoretical and methodological foundations of musical acoustics and sound engineer, features of the work of the sound engineer, necessary for future professional activities as performer and actor - vocalist, as well as peculiarities of sound reproduction in different conditions, includes the following topics: «Nature, types and values of sound»; «Sound recording as the original kind of artistic creativity»; «Sound recording equipment in field conditions»; «Sound reproducing and acoustic equipment»; «Technical means of studio recording»; «Features of the equipment selection for the studio»; «Sound recording software»; «The premises of the studio complex and the location of the studio components in them»; «Fundamentals of reduction in the process of recording»; «Specificity of the recording of string musical instruments»; «Recording of Wind Musical Instruments»; «Features of the recording of percussion musical instruments»; «Procedures for assessing the quality of sound recordings»; «Criteria for evaluating the quality of sound recordings»; «Features of the assessment of the quality of studio sound reproduction»; «Features of the artist in the studio recording»; «Collection of sound recordings»; «Principles of communications of sound recording engineer and performer»; «Organization of work of the sound engineer in the recording studio»; «Ergonomics of the sound recorder's workplace»; «Sound recording tools of a studio record»; «Specificity of multichannel studio recordings»; «Sound equipment of various types of studio recordings»; «Selection of sound equipment for professional studio»; «Features of the record of own performance»; «Specificity of sound recording by the nature of the works in their own performance».

During preparation for lecture lessons from these training courses the Power Point program from the Microsoft Office package (Microsoft Power Point, 2018) was used. The presentations were developed using animation components to facilitate students' understanding of the graphical interpretation of the propagation of sound vibrations, the direction of the microphones, etc., and also allowed to emphasize the key points of the content of the lectures. This made it possible to build a simpler understanding and memorization of the sequence of events and events. For example, in the course «Musical Acoustics and Sound Processing» there is a lecture «Fundamentals of musical acoustics», in which the presentation includes the following slides: «Human perception of sound», «Sounds in the plane «Pressure Frequency», which people perceive by ear», «Properties of Emmelic sounds», «Sound-sound pressure», «Sound level change», «Sound frequency», «Timbre». The course «Fundamentals of Sound Recording» provides a lecture «Technical Audio Palette», in which the presentation includes the following slides: «Historical Stages of Microphones Development», «General Classification of Microphones for Purpose», «Types of Microphones with Principle of Action», «Types of Microphone Directions», «Devices of dynamic processing of a sound signal», «Devices of frequency processing of a sound signal», «Devices of time processing of an audio signal», etc. Slides contain sound examples that provide activation of both visual and

auditory perception of students. Obviously, for lecture presentations to be used, it is necessary to conduct a lecture in an appropriately equipped audience with at least a multimedia whiteboard or projector to ensure the availability of visual presentation for all students in the academic group, as well as acoustic systems to ensure that the students of the academic group receive the audio of presentation.

Clearly, in the absence of opportunities for using multimedia technologies, theoretically, traditional means such as a board and chalk can be used, but it will take much longer and will not allow them to fully achieve the objectives of the classes.

It is natural that the use of presentations is appropriate in the process of preparation for lectures from many courses, in particular for students of the specialty «Music Art» (for example, «History of World Music», «History of musical performance», etc.), but the use of some computer programs is appropriate only in the process of training future bachelors of musical art. These are digital audio workstations (DAW). In the course «Fundamentals of sound recording», practical lessons involve the acquisition of two computer programs: Adobe Audition (Adobe Audition CC, 2017) and Steinberg Cubase (Steinberg Cubase Pro 9.5., 2017). At the first stage, students' acquisition of digital audio workstations is appropriate, in our opinion, to focus on Adobe Audition, as this program has a relatively simple interface and allows audio recording and processing of audio information through VST plugins. Using this software, students learn to record vocals and various musical instruments, edit audio recordings and use VST compressors, equalizers, etc. At the next steps, it is advisable to focus future bachelors of music art on Steinberg Cubase to master the balancing and mastering of sound recordings. Realization of the tasks of practical classes on disciplines «Musical acoustics and basics of sound processing» and «Fundamentals of sound recording» allows students not only to realize theoretical knowledge in direct practical activity (such realization is also foreseen by the tasks of practice), but also to feel as a sound engineer and recording engineer. Accordingly, these training courses integrate the process of professional training in the specialty, from the performing, musical, theoretical and musical-technical training. It is obvious that practical classes should be conducted in an adequately equipped computer office, which has a sufficient number of personal computers with the corresponding system requirements in accordance with the number of students in the academic group, for which the appropriate licensed software is installed.

Courses «Music Acoustics and Sound Processing» and «Fundamentals of Sound Recording» are basic and their mastering does not mean that students will be able to work as sound engineers or recording engineers, but the acquired competences will allow them to carry out sound recording and recording of their own performance for educational purposes. Such recordings occupy a separate place in the process of mastering the specialty by performers, but this aspect of the professional training of future bachelors of music art is not the subject of this article.

The methodology of using software to provide multimedia learning competencies and the application of computer programs in the process of mastering training courses from the cycle of professional training includes certain stages.

A. Creation of a multimedia educational environment, which provides both technical support for the necessary devices and means for informing the process of professional training and mastering by scientific and pedagogical workers the method of using multimedia technologies in the course of teaching courses.

In order to clarify the content of the process of creating a multimedia educational environment with the aim of systematizing, it would be advisable to conditionally divide it into two components: material and software of the multimedia competence acquisition process and methodically-applied multimedia acquisition of competencies. Material and software provides material and technical support, which includes a recording studio, a

computer room, staffed with the number of computers with the necessary computer programs with system requirements, equal to the maximum number of students in the academic group, the presence of a sufficient number of multimedia audiences, as well as the availability of necessary installed computer programs. Methodically - application provides training for students to use computer programs. If necessary, this component also includes the improvement of the skills of scientific and pedagogical workers in the direction of mastering the specialized programs necessary for a specialist in the field of musical art. Obviously, the named component components are inextricably interrelated and separated only theoretically and for the purpose of explanation and systematization.

B. Improvement of curricula and educational and professional programs aimed at strengthening the multimedia component of professional training, which involves deepening of interdisciplinary connections between the curricula of the variable and the invariant component of the curriculum and ensuring the sequence of educational disciplines (for example: 1) information computer technologies; 2) the basis of musical information computer technologies; 3) music informational computer technologies, etc.).

C. Improvement of the curriculum and educational-methodical complexes of the training courses of the variable and invariant component with the purpose of expedient expansion of multimedia content in them, expansion of interactive and network forms of work, deepening of informatization of training courses, etc.).

D. Development of methodical recommendations for the development of advanced classes using multimedia technologies.

The main methodological principles for the development of classes using multimedia technologies are:

- a) the use of multimedia is one of the main means of training and the formation of the necessary competences;
- b) multimedia means complement and deepen traditional teaching technology and are organically associated with other components of the learning process;
- c) it is expedient to alternate various forms of organization of educational activities (frontal, group (small groups), individual) within the scope of classroom work.

The basic conditions of multimedia education for future bachelors of musical art are:

- a) mastering the skills of using a personal computer and computer programs, organizing the search and use of information in electronic form;
- b) the development of teachers high-level planning the structure and content of actions in a limited list of means;
- c) formation of the ability to describe phenomena and processes through the construction of information structures, as well as logical, concise and unambiguous presentation of various aspects of educational information;
- d) availability of information and technical conditions for the use of multimedia in the educational audience;
- e) development of readiness of future bachelors to study in a multimedia educational environment.

Obvious are the difficulties faced by teachers in the process of moving from traditional forms and methods to classrooms based on multimedia and technology.

The method of preparation for training using multimedia means of training should include the following steps:

- a) determining the expediency of using specific multimedia technologies in the class in accordance with its purpose, tasks, content, etc.;
- b) familiarization with the content and the main features of specific multimedia products, the use of which is planned at the lesson;

- c) specification of the content and structure of the classroom taking into account the use of certain multimedia products;
- d) specification of the place and role of the multimedia product in the structure of the class;
- e) generalization of expected results from the functional and didactic purpose: training, development and upbringing.

Based on the analysis of the above, it can be argued that the use of multimedia technologies in the process of training has more advantages than the disadvantages of both the didactic aspect and the requirements for the professional qualification of the modern bachelor of music art, therefore, the expansion of the use of such technologies in the process of training is positive will affect the competitiveness of the graduate institution of higher education in the modern labor market.

Conclusions. Taking into account the social conditions and the prevalence of information technologies, their use in the process of professional training of future bachelors of music art is of indisputable importance for the formation of a qualified specialist. The methodical principles of the use of multimedia means of teaching in the process of professional training of future bachelors of musical art are specified in the methodological stages of the use of multimedia technologies, methodological bases of the development of classes using multimedia technologies and conditions of multimedia education of future bachelors of musical art. The use of multimedia technologies is a requirement today, so the problem of future bachelor's training in music art with the use of multimedia tools remains relevant. The most perspective directions are the development of interactive multimedia manuals on disciplines of the cycle of vocational training (especially for correspondence forms of training and for distance education); introduction of informatization to the system of control over students' independent work on disciplines of the cycle of professional training; development of educational Internet resources in the field of musical art; as well as the development of programs, manuals for the improvement of the skills of scientific and pedagogical workers.

REFERENCES

- Agnew, P., Kellerman, A. & Meyer, J. (1996). *Multimedia in the Classroom*. Boston: Allyn and Bacon.
- Fetterman, R. (1997). *The interactive cooperation*. New York: Random House Publishers. 97-115.
- Mayer, R. (2001). *Multimedia Learning*. NY : Cambridge University Press.
- Neo, M. and Neo, T. (2000). *Multimedia learning: using multimedia as a platform for instruction and learning in higher education*. Paper presented at the Multimedia University International Symposium on Information and Communication Technologies 2000 (M2USIC'2000), October 5-6, 2000, Petaling Jaya, Malaysia.
- Sedláček M. (2010). *Music Software Used by Teachers in Music Education at Elementary Schools of Czech Republic. The Multimedia Technologies Applications in Music Education*. Brno. 33-38.
- Microsoft Power Point. (2018) Microsoft Office Power Point 15.14.0. November 23, 2018.
<https://products.office.com/en-us/powerpoint>
- Adobe Audition CC. (2017) A professional audio workstation. October 12, 2017.
<https://www.adobe.com/products/audition.html>
- Steinberg Cubase Pro 9.5. (2017) Create. Produce. Mix. Repeat. November 14, 2017.
<https://www.steinberg.net/en/products/cubase/start.html>

Text of the article was accepted by Editorial Team 02.11.2018

ВИКОРИСТАННЯ МУЛЬТИМЕДІЙНИХ ТЕХНОЛОГІЙ У ПРОЦЕСІ ПРОФЕСІЙНОЇ ПІДГОТОВКИ МАЙБУТНІХ БАКАЛАВРІВ МУЗИЧНОГО МИСТЕЦТВА

Корякін Олексій

Кандидат педагогічних наук, кафедра хорового диригування, вокалу та методики музичного навчання, викладач

Сумський державний педагогічний університет імені А.С. Макаренка, м. Суми, Україна

prof_extreme@mail.ru

ORCID: 0000-0002-3084-8796

Анотація. Стаття присвячена методичним засадам використання мультимедійних технологій у процесі професійної підготовки майбутніх бакалаврів за спеціальністю «Музичне мистецтво». Наводяться загальні умови мультимедійного навчання майбутніх бакалаврів музичного мистецтва, основні етапи використання мультимедійних технологій у процесі професійної підготовки та методичні засади розробки занять з використанням різних мультимедійних технологій в процесі викладання курсів циклу професійної підготовки. У статті містяться загальні характеристики курсів циклу професійної підготовки «Музична акустика та основи звукорежисури» і «Основи звукозапису», перелік тем з їх змісту, а також наводяться приклади використання в процесі викладання цих курсів різних мультимедійних технологій та програм. Також у статті визначаються етапи використання програмних засобів у процесі засвоєння навчальних курсів з циклу професійної підготовки, методичні засади розробки занять з використанням мультимедійних технологій, основні умови використання мультимедійних засобів навчання у процесі професійної підготовки майбутніх бакалаврів музичного мистецтва. Робиться акцент на значенні використання в процесі професійної підготовки майбутніх бакалаврів музичного мистецтва мультимедійних технологій та програмного забезпечення.

Ключові слова: мультимедіа; музичне мистецтво; звукорежисура; звукозапис; Power Point; Adobe Audition; Steinberg Cubase; професійна підготовка; бакалавр музичного мистецтва