Digital educational space in the professional training of music teachers

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Abstract. Professional training of music teacher is a versatile and creative process. It includes numerous areas, such as instrumental and vocal training, studying pedagogical technologies for working with children, studying masterpieces of world music art, and, certainly, studying digital resources and technologies. Digital education space is a digital environment integrating opportunities of digital education resources, computer-aided music technologies and tools, which is the basis in training music teacher. The importance of skills of setting as interactive accompaniment and basic user accompaniment in the form of phonogram is also stipulated by the specificity of accompaniment activity of music teacher as one of the major constituents of professional readiness. Imagination of music teacher as a concertmaster (accompanist of children singing) exerts the influence on whether he would be able by means of expressive playing and keyboard technique to underline and to support the temper of children singing, to present clearly and to reproduce instrument features by piano. That is, a music teacher should be aware of organology, know features of instrument sounding and peculiarities of various instruments. This is sufficiently aided by sequencer software with embedded banks of virtual tunes on synthesizer. In digital education space, video is presented as teaching aid for transfer of learning information, that is, it is considered as video aid, video device used for organization of education. Under existing conditions of distance learning, the interaction between teacher–choirmaster, teacher–vocalist, concertmaster, and students is supported by information and communication technologies. Therefore, mastering means and resources of digital education space is aimed at improved of professional training of future music teacher being the basis of formation of personal capabilities and skills of student.
Keywords: professional training of music teacher, education space.

1 Introduction

Analysis of issues of essence and development of professional training of future teacher is an urgent task of modern higher education. The existing situation in the higher education system

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requires for new forms and methods of working with students, involvement of new tools and digital resources. All this is stipulated by development of digital community and necessity to change orientation in education field of university training.

Theory and methodology of professional training in the area of music pedagogy consider only indirectly the issue of professional training of music teacher using means of digital space in some areas of education technology. The importance of this article is in elimination of gap between the formulated problem and few studies of digital education space in professional training of music teacher.

While analyzing the works devoted to the development of digital education space in professional training of music teacher, the following results have been obtained: I.B. Gorbunova discloses the main areas of use of digital electronic space: in education, in educational entities, for training experts in the field of digital electronic space, etc. [1]; the use of music computer technologies in education is substantiated by I.M. Krasilnikov [2] and M.M. Zabbarova [3]; the main principles, important for this work, are described by E.B. Abdullin and A.V. Toropova, they form the basis of theory and practice of training future music teacher [4, 5].

Scientific novelty of the study is in identification of features and substantial constituents of digital education space of music teacher, which are applied the most efficiently in musical education.

The research hypothesis is comprised of the following assumptions:

1. Digital education space is an important component in professional training of music teacher, being of peculiar significance and specificity for musical activity expressed in multifunctionality and multidirectionality.

2. Digital education space is a platform of personality development of music teacher, since it develops digital literacy, ability to orient in digital resources and technologies required for future professional activity.

The results of introduction into digital education environment are evidenced by successful participation of students in the WorldSkills university competitions by the specialty Music Teaching in School.

Let us describe the substantial aspects of development of digital electronic space used for training future music teacher. It is based on one of the types of the creative music playing: music setting or video technologies, as well as on working in distance format using modern digital platforms. They all are comprised of universal means and methods of digital electronic space [6, 7].

Music setting in training of modern music teacher is an important component of universal professional competence [6], it is accounted in various ways in university education and participation of students in the WorldSkills competition. Skills of setting are expressed in the course of work using interactive keyboard instrument by means of splitting and imposition of various tunes and keys, which assist in orchestrating and stress the mood and pattern of songs [8].

Video technology is another tool applied in modern digital education space to train music teacher for professional activity [9]. This technology implies presentation of information and other educational materials by their visualization [10]. Herewith, the visualization of information can be considered at various angles: as a tool, as a method, and as technology [11].

Distance learning during the pandemic (spring, 2020) allowed to develop correctly and elaborately the education system, and not only to continue it under lockdown conditions but also to elevate it to a new level using all constituents of digital education space.

The Department of music and choreographic education, Akmulla Bashkir State Pedagogical University, intensively operates in the system of distance learning for all disciplines, including individual classes, namely: main musical instrument, supplemental

musical instrument, vocal, conducting, etc. [12] High-quality classes are supported by all known online and offline education resources [13]: WhatsApp, Zoom, Skype, e-mail and, of course, the platform of Akmulla Bashkir State Pedagogical University: https://lms.bspu.ru/. If Zoom is more suitable for classes with online communication, then the University distance education system is more suitable for assessment of home assignments of students, for practical courses. Students actively study various conducting schemes, learn the masterpieces of choir music, warm up voices, discuss mastery interpretations of instrumental and vocal works, study multitrack sequencers: Pro tools, Logic pro X, Steinberg Cubase, virtual tools of sound processing, plug-ins by Wavs and Sonnox Oxford [14, 15]. The formed competences are verified by testing arrangement of microphones and hard- and software complexes.

2 Methods

While analyzing introduction of students into digital education space, observation and survey were used.

At first, it was determined that the concepts of most students concerning digital education space were restricted by the notion of technical support of education.

Table 1 presents empirical data of experimental and reference groups of students with various level of expertise in digital education space. Differentiation of students of experimental and reference groups was based on the level of expertise in digital education space at the moment of testing.

Table 1. Empirical data of experimental and reference groups of students with various level of expertise in digital education space.

Level of expertise in digital education space	Experimental group		Reference group	
	Number of students	%	Number of students	%
High	4	20	3	16
Medium	8	36	8	36
Low	10	44	11	48

It can be seen that at the step of diagnostic testing, most students were included into the group with low level of expertise in digital education space (44% students). The medium level was demonstrated by 36% students. And only one fifth of the students demonstrated high level of this property. Comparative analysis of students from reference group confirmed this trend. Results of diagnostic testing were classified as follows: medium level was determined in 36% of students, high level – in 14% of students, low level – in 48% or slightly below one half of students.

In order to solve the tasks of the research, it was required to develop special system to train students in digital education environment, extending beyond the frames of classroom system, adjusting the influence on students aiming at variation of situation. Such preparation implied existence of several stages of training improvement of future music teacher, including the system of information and communication skills as well as the required tools:

1. Organization of methodological provision of education on the basis of digital resources, increase in time for subjects related with music and computer technologies;
2. Monitoring processing of educational results by reference examinations;
3. Organization of distance interaction of all participants in education space;

Extending beyond the frames of education entity, integration with other participants in digital education space (institutions of further education, social and cultural sphere, etc.).

3 Discussion

The experimental results were based on modern requirements to implementation of digital education space including observation and survey, they revealed that the interaction of all participants in digital education space provided the best communication, it was an additional method of improvement of training of future teacher. Such communication took place in the frames of specified education program and professional training [16]. All theoretical studies were applied to predefined pedagogical practices [17]. The use of means and resources of digital education space demonstrated absolutely new level of introduction into material, improved qualitative and quantitative segments, influenced ordering of acquired knowledge, enhanced cultural level [18].

After working according to the proposed program, the level of expertise in digital education space was tested again. The results are summarized in Table 2.

Table 2. Results of the retesting.

Level of expertise in digital education space	Experimental group		Reference group	
	Number of students	%	Number of students	%
High	8	36	4	20
Medium	7	32	7	32
Low	7	32	11	48

Comparing initial and final level of expertise in resources and means of digital education environment during testing, it was possible to determine the dynamics summarized in Table 3.

Table 3. Comparing initial and final level of expertise.

Initial level			Final level		
Dynamics of level of expertise in digital education space					
	Number of students	%		Number of students	%
High	4	20	High	8	36
Medium	8	36	Medium	7	32
Low	10	44	Low	7	32

4 Conclusion

Determination of importance of mastering resources and means of digital education space has allowed considering the formulated problem in the context of professional training of music teacher. In its turn, this will allow not only to correctly arrange the education of future music teachers but also to form systematic concepts of important stages, actions, and operations for mastering of important musical skills by means of digital education space.

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