

DEVELOPING INFORMATION COMPETENCIES OF FUTURE MUSIC TEACHERS THROUGH MULTIMEDIA AND AUDIOVISUAL TECHNOLOGIES

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Abstract: This paper presents the results of research focused on developing the information competencies of future music teachers which integrated the experience of national and international universities. The main intention of this research was to consolidate the studies on professional training of music teachers at Mordovian State Pedagogical University named after M. E. Evseev (Russia, Saransk) and Kazakh National University of Arts (Kazakhstan, Astana). The goal of the authors was to examine the problem of developing the skills of future music teachers in the use of multimedia and audiovisual technologies integrated in various creative activities as part of the professional training of a teacher.

Keywords: information competencies, music teacher, multimedia technologies, audiovisual technologies, networking cooperation, partner universities.

1 Introduction

In the modern high-tech world, the audiovisual and multimedia tools have become ubiquitous, shaping and determining the minds and culture of children and studying youth who use such technologies solely to satisfy their needs for information and entertainment. It is impossible to disregard that in the professional training of music teacher. Professional competence of a modern music teacher with rapid updating of information imminently requires the use of information and communication technologies in school practices. For addressing professional objectives, the focus should be on developing the information competencies which include the ability to create resource-information databases for implementing activities in various spheres; the ability to acquire and use, inter alia through the information technologies, the new knowledge and skills, directly related to the field of occupation; the readiness to develop and implement the training methods, technologies and techniques and to analyze the results of their implementation in the institutions carrying out educational activities; the readiness to use the modern information and communication technologies and mass media for solving cultural and educational tasks.

The content of such competencies calls for invigoration of the creative aspect in the professional practice of a present-day teacher. Unfortunately, the conventional tools and methods of training only partially relate to the problems of human as a creative personality and individuality, and are not sufficiently effective in fostering information competencies laid down in the regulatory documents. This heightens the relevance of this research stemming from a need to use multimedia and audiovisual technologies in music education relevant to the dictates of times and turning them into a training tool essential for professional development of a future music teacher.

2 Literature Review

Foreign studies (Koch, 2016; Kennedy et al., 2017) explore concepts and methods involving the information and communication technologies to encourage and develop the project thinking. The authors believe that there are three main components to high-quality learning, in particular, the content (well-organized and integrated knowledge, theories, ideas, practices, and approaches to using knowledge from different fields), the pedagogy (pedagogical processes and teaching methods), the technology (different types of pedagogical

techniques and information technology most appropriate for certain subject areas, however the subject area content may evoke changes in technology or vice versa) (Koch, 2016).

Multimedia and audiovisual technologies (Moshkarova, 2011; Parshina, 2014; Velichko & Mironova, 2015; Bondareva, 2016; Strielkowski & Chigisheva, 2019; Jen et al., 2016; Burnashev & Spiridonova, 2016; Golubeva, 2016; Soltovets et al., 2019; Khusainova & Shcherbotaeva, 2017; Lukiyonov et al., 2017; Terrazas-Arellanes et al., 2018; Gorunova & Lebedeva, 2018; Noskova et al., 2018; Velichko et al., 2020; Parshina & Karpushina, 2020; Kobozeva et al., 2020), are widely used abroad and domestically and permeate various areas of social life, including education and mass consumer culture.

Thus, the research of F.E. Terrazas-Arellanes, M.A.J. Gallard, L.A. Strycker, E.D. Walden (2018) has proven the effectiveness of interactive online multimedia modules introduced in the learning process in order to improve the scientific competencies of students, especially in inclusive education. Some studies concentrate on the role of "multimedia multicomponent professional development packages" considered as a combination of electronic methodological resources in improving the quality of students' education (Kennedy et al., 2017). These papers also address the functionality of multimedia technology related to high-quality sound, realistic color images, graphics, video, and other interactive elements that allow for successful mastery of the studied content compared to the conventional learning.

The content of multimedia technologies includes modern multimedia presentations, which design is constantly undergoing changes to improve the effectiveness of learning at university. Research papers by R.E. Mayer, J.T. Howarth, M. Kaplan, S. Hanna (2018) examine the use of the segmentation principle (graphics presented on the left side and text on the right side of the presentation slide) to classes in the form of an online slide show. At the same time, students have control over movement from one slide to another for sequential study of the material.

In the context of the use of audiovisual technologies, modern scientific efforts of foreign scientists (Charalambous et al., 2018) focus on such organizational forms of pedagogical process at university as "video clubs", which facilitate immersion of students in the problems of practice and mobile response from future teachers to changes in practice, as well as conducting various theoretical research as part of the video club. In research by the Australian Professional Teachers Association (Watters et al., 2018) learning videos are used to analyze the lessons delivered in the classroom by experienced teachers.

Based on the above, it should be highlighted that:

1) Currently, audiovisual and multimedia technologies are used in the process of musical education as methodological and technological tools for addressing didactic learning objectives (intensity of assimilation of educational information with the help of presentational computer programs, through visual appeal, design, structuring; introduction of new interactive organizational forms of classes - video clubs, audiovisual projects; use of multimedia reference online modules on the subject).

2) There are no studies in foreign and national theory and practice aiming to develop the students' skills of using these resources in education on the basis of their integration into the organizational, content and procedural component of creative professional activities, which are the essence of personal development of a specialist as a teacher of artistic-practical and humanitarian spheres.

3 Research Methodological Framework

The research purpose was to develop information competencies of future music teachers by integration of multimedia and audiovisual technologies in various creative activities forming part of the professional training of a teacher.

The research addressed the following objectives:

- 1) develop practical skills for using multimedia and audiovisual technologies in the process of music education;
- 2) develop the independent approach to selecting the software and methodological aids for supporting the modern learning process.

For assessing the information competencies of future music teachers this research relied on theoretical methods (analysis of scientific literature, consolidation of pedagogical experience), empirical methods (the pedagogical experiment) and mathematical methods.

The research was held from 2018 till 2021. The Mordovian Research Center of the Russian Academy of Education (the research and development laboratory "Continuous Music Education") served as the research and development space for experimental research on the stated problem. The experiment participants were 300 students of the Mordovian State Pedagogical University named after M. E. Evseviev (hereinafter referred to as the Evseviev's MSPU) and the Kazakh National University of Arts (hereinafter referred to as Kazakh NUA), including 180 students of Evseviev's MSPU in the field of training Pedagogical Education, Music specialty, and 120 students of Kazakh NUA in the field of training Music Education, of 2nd, 3rd and 4th years of study.

4 Results and Discussion

The research results indicate personality changes in students, bringing into prominence that development of information competencies of a future specialist by integrating the creative aspects of professional activity (listening to music, music playing, singing, freestyle) and possibilities of multimedia and audiovisual technologies leads to qualitative changes in the personal creativity component of professional activity of a modern teacher as reflected in the publications of researchers (Kobozeva, 2013; Parshina, 2014; Kobozeva et al., 2014; Kobozeva et al., 2015; Khusainova & Shcherbotaeva, 2017).

The results of the conducted experiment were as follows: at the diagnostic stage, the higher level of information competencies was demonstrated by 21% of students from Saransk and 15% of students from Nur-Sultan. At the same time 12 % of students from Saransk and 14 % of students from Astana were found to have good knowledge in the field of basic general pedagogical requirements for the implementation of audiovisual technologies in the subject area "Music". The most complex cognitive element was the knowledge of the criteria of pedagogical effectiveness of the use of audiovisual and multimedia technologies in the music teaching process - 10% (Saransk, Nur-Sultan), 22% (Saransk) and 26% (Nur-Sultan) of students showed a basic level of information competence in the use of multimedia and audiovisual technologies in the pedagogical process. The low level was shown by 57 % (Saransk) and 59 % (Nur-Sultan) students.

The main diagnostic criteria were:

- Independent, comprehensive and competent demonstration of knowledge of basic audiovisual and multimedia teaching technologies and techniques of work with these technologies; basic general pedagogical requirements for the implementation of audiovisual technologies in the subject area of music teaching; criteria of pedagogical effectiveness of using audiovisual technologies in the music teaching process;

- Good skills in using audiovisual and multimedia technologies in the subject area; in fusing together the audiovisual technologies of training and general pedagogical methods and techniques of music education; the ability to analyze the learning activity of students and methodological activity of a teacher related to the use of audiovisual and multimedia technologies of training.

The ascertaining experiment revealed the prevalence of satisfactory level of skills in the use of audiovisual and multimedia technologies in the subject area, which manifested in the problems faced by students related to their ability to integrate the possibilities of electronic resources in creative professional activities, develop and implement creative exercises as a methodological toolkit essential for a teacher.

It should be especially emphasized that the study of modern practice (survey of music teachers, teachers of supplementary education in the field of arts, attendance of methodological seminars, master classes, competitions, etc.) showed that the specified problem is also typical for the music pedagogical community carrying out its activities in both general education schools and institutions of supplementary education for children.

The research objectives of developing the practical skills in using multimedia and audiovisual technologies in music teaching process at school and elaborating an independent approach to the selection of software methodological support for the modern educational process were accomplished with the help of certain corrective measures developed and implemented in the educational processes at Evseviev's MSPU and Kazakh NUA:

- 1) Use of interactive teaching methods, creative assignments intended to model the music teaching practices, extracurricular activities and music lessons in supplementary education.
- 2) Incorporation of multimedia and audiovisual technologies (multimedia presentations, training programs, electronic measuring materials, etc.) into the training process of major disciplines within a certain specialty.
- 3) Development and introduction of elective courses (on the basis of Evseviev's MSPU: "Audiovisual Technologies in the Music Teaching Process", "Use of Multimedia Technologies in Music Education", etc.; on the basis of Kazakh NUA: "Multimedia Support of Music Lessons"), focused on transmitting special knowledge about types of modern audiovisual technologies of training and diagnostics, practical mastering of methods of work with modern audiovisual resources, creative music computer programs, electronic textbooks, music computer didactic games, computer training programs, multimedia presentations, modern screen arts, etc. in the educational process and music cultural and educational activities.
- 4) Introduction of supplementary general education programs and qualification upgrade programs for senior students (on the basis of Evseviev's MSPU: "Music and Computer Technologies", "Innovative Music Pedagogical Technologies") intended to familiarize students with the music computer programs, digital musical instruments for improving practical skills of work with multimedia and audiovisual technologies.
- 5) Development and introduction of electronic educational resources (on the basis of Evseviev's MSPU: multimedia courses in the disciplines "Analysis of Musical Compositions", "Theoretical Foundations of Musicology", "Solfeggio", "Polyphony", "History of Music" (Parshina, 2018); on the basis of Kazakh NUA: "Innovative Educational Methods for Music teacher", "Didactic Music Aids on Kazakh National Rites" in Kazakh, Russian and English (Khusainova & Shcherbotaeva, 2017).

The control stage of the experiment yielded the following results. After the formative experiment at Evseviev's MSPU, 17 % of students had the low level, 43% – the basic level and 40 % – the high level. In Kazakh NUA, at the control stage of

research 15% of students demonstrated the low level, 46% - the basic level and 39% - the high level.

In general, it suggests an increase in the level of information competencies of students from both higher education institutions.

The results of research into the level of information competencies of students in Saransk and Nur-Sultan by means of multimedia and audiovisual technologies are presented in Table 1 which was produced by the authors.

Table 1 The revealed level of information competencies of students from Evseviev's MSPU and Kazakh NUA

	Evseviev's MSPU (Saransk)		Kazakh National University of Arts (Nur-Sultan)	
	Ascertaining stage	Control stage	Ascertaining stage	Control stage
High	21%	40%	15%	39%
Basic	22%	43%	26%	46%
Low	57%	17%	59%	15%

Source: compiled by the authors.

The statistical results obtained at the ascertaining and control stages of experiment indicate an increase in the level of information competencies of students from both universities. At all stages of experiment, the ongoing monitoring was performed over development of information competencies of students from Kazakh NUA and Evseviev's MSPU.

5 Conclusion

The conducted research helped to validate the assumption that the above described scenario for multimedia and audiovisual support of professional training of music teachers in the modern university is expressed in the growing role of networking cooperation, which allows to unite the efforts of teachers of two universities, both scientists and practitioners, when building an educational policy for preparing future music teachers which would embrace the key trends in musical pedagogical education in Russia and Kazakhstan; in the search for innovative scientific and practical solutions to the current problems existing in the modern music pedagogical education.

The undertaken endeavour made it possible to identify: the wide possibilities of using multimedia and audiovisual technologies in the music teaching of future music teachers; specific features pertinent to development of multimedia and audiovisual competencies of future teachers pursuing the Music Education specialty.

The practical value of the research lies in the conclusions drawn based on the analysis, which can be used in practice of educational institutions for preparing music teachers. Prospective areas for further research on the problem could be the studying of the specific aspects related to implementation of these technologies in the Music field of training at different levels of education.

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