Analysis of Modern Trends in Contemporary Choreographic Art: The Challenges of Digitalization

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Abstract

The purpose of this article is to analyze current trends in choreographic art through the challenges posed by digitalization. The realization of the goal relies on the use of a number of approaches and methods integrated with pedagogical, art history, and social cognition. The results investigated digitalization as a way of creative choreographic communication, the role of synchronous and multimedia technologies in the system of digital learning, identified the main features of the multimedia environment, emphasized the use of video hosting and educational platforms for synchronous learning, drawing attention to the scheme of using educational materials during video classes. The conclusions indicate the importance of the further study of this problem (through the active development of digital technology) and emphasize the benefits of digitalization and its impact on choreographic art.

Keywords: choreography, music in choreography, higher choreographic art education, digitalization

1. Introduction

The development of digital technologies and the significant informatization of society affect modernity and impose updated requirements on the functioning of previously known human activities. Art is no exception to this rule, and the use of modern technological solutions for its popularization, promotion, demonstration, and even creation have become urgent tasks for specialists. Rethinking the essence of all art today is justified not only by people's personal attitudes toward the world, but also by common perceptions about artists, viewers, and creativity in general. For this reason, the newest art forms create the need for the use of technology as important additions to already well-known classical techniques.

Modern social transformations dictate changes in strategies, goals, and values of the art of choreography, which are focused on the education and development of creators of a new type, capable of assimilating classical pedagogical precepts, combining them with achievements of modern schools and directions of development in artistic, sports, pedagogical dimensions. The universal nature of choreography has become a method for the formation of innovative potential of performers, creators, and retranslators of cultural and aesthetic tastes for society (dissemination of relevant values among society). Modern choreographers act as assistants, choreographers, teachers, managers, researchers, tutors, producers, and creative leaders. Significant growth of directions of choreographic art development allows finding new approaches, ways of theoretical comprehension, and practical implementation of elements of improvement of professional training and personal creative level.

The study of modern choreography trends is of great importance, as it allows us to understand the directions of development of this art form in our time. In particular, the study of contemporary choreography helps to identify new innovative dance techniques and styles, which allows choreographers and dancers to expand their repertoire and develop in their profession. Also, the study of choreography trends allows us to understand what topics and issues are relevant in our society and how they can be reflected through dance. Thus, choreography can become an important means of expressing social issues and cultural norms. It is also important to take into account the modern

possibilities of digitalization of education, which is also important for understanding the further development of the industry.

In modern scientific literature, the problem of using digital technologies in the system of training choreographers is ambiguous. In particular, Alarcón López et al. (2021), who investigated the main transformations of choreographic art resulting from the spread of the Covid-19 pandemic, believe that although higher education didactics is seen as a platform for the reproduction of a variety of pedagogical innovations, it is clear that not all forms of choreographic training can be easily reproduced through digital technology. At the same time, Vyetrynska (2017) analyzing contemporary innovations in choreographic education noted that the structure of choreographic training involves various forms of organization of students' learning work, in which digital and synchronous technologies are almost the main place. Cardinal et al. (2020) analyzed contemporary educational programs for dancers at colleges and universities in the United States. Hsia & Hwang (2020) investigated the problem of embellishing choreography in university dance courses through the lens of the use of modern mobile technology. Korobeinikov et al. (2016) characterized the features of cognitive function formation and choreographic skills in modern dancers. Salo (2018) analyzed key aspects of training future choreography teachers in US universities. The researcher examined the content of choreography teacher training at the undergraduate educational level, highlighted the main features of educational courses of fundamental direction, in particular analytical writing and reading, intellectual heritage, etc. Sun (2022) characterized the problem of teaching a dance choreography course based on the implementation of a multimedia network environment. Consequently, the current literature does not pay enough attention to the prospects of using digital technology in the training system of choreographers. In addition, among modern scientists prevails an ambiguous attitude to the large-scale digitalization of education, especially its practical branches. This article aims to analyze current trends in choreography through the challenges posed by digitalization.

2. Method

Implementation of the goal relies on the use of a number of approaches and methods integrated with pedagogical, art history, and social knowledge. The use of general scientific theoretical methods of research (analysis, synthesis) contributed to a comprehensive understanding of the main directions and trends in the development of choreographic education through the prism of digitalization. Based on the analysis, the main subject of the study is divided into smaller parts, in particular, the significance of digitalization in the system of choreographic education is analyzed, the possibilities of Ensemble and YouTube platforms to improve the training of future choreographers are investigated, the trend of integration of virtual reality and computer games in the system of choreographic education is highlighted. Through the use of synthesis, these elements are combined and the own vision of the development of digital education is formed. Through the prism of the foresight method, the possible perspectives of digitalization development and its impact on choreographic art are characterized.

3. Results

3.1 Digitalization as a Way of Creative Choreographic Communication

Contemporary researchers highlight some of the benefits of turning to Web technologies and other digital tools (Bakhmat et al., 2022). These are primarily about making new decisions in professional activities when other techniques have not been successful in their use; simplified navigation properties in the various projects outlined on the Web by conventional search; easy search using templates; self-generated processing of large video collections; and easy expansion of the existing collection to include new information.

The Web can also enable dancers to identify their own collections of recordings so that they can be easily found and reproduced, compared, cited, and used in some elements of the choreographic training of other choreographic projects for further creative reflection and creative use.

According to contemporary requirements for the training of contemporary professional choreographers, the amount of knowledge required in choreography has increased markedly due to global trends of digitalization, informatization, and globalization (Butterworth, 2004). At the same time, the integration of digital technologies in the educational process facilitates and accelerates the transfer of information, and educational applicants through online resources allow them to learn about different dance styles and movements, regardless of their geographic location or nationality. Consequently, future choreographers can use videos of dance performances, performances, seminars, or master classes on the Internet in their modern professional training (de Freitas, 2006). This will contribute to the additional practical training of students.

The traditional form of transferring knowledge of choreographic art involves the demonstration on the principles of mobility and visibility. Transmission of the practical elements of performing a movement only in verbal form is impossible and does not contribute to the development of practical skills of students. Consequently, visual and demonstration teaching methods become important through the prism of choreography teaching methodology (Cardinal, Rogers & Cardinal, 2020). We believe that the formation of teaching materials in choreography is a convenient form that requires minimal resources with the greatest efficiency of use. This was evident long before the widespread use of digital video recording technologies. A variety of materials of Internet video services can complement, enrich the process of transferring choreographic knowledge, skills, and abilities, contribute to the development of practical skills in students.

3.2 The Role of Synchronous and Multimedia Technologies in the Digital Learning System

Synchronous technologies play a prominent role in the digital learning system. Despite this, the process of competent use of digital tools contributes to providing educational institutions with a quality educational product (Filipova & Usheva, 2021). Contemporary researchers note that the organization of teaching through synchronous technologies such as Microsoft Teams Miro leads to better results primarily through the use of virtual simulations and scenarios. At the same time, synchronous platforms have a number of significant advantages: they are interactive, affect the formation of a digital culture of communication. Students can also arrange communication with their professors when it is convenient for them and learning materials can be easily updated through a single e-learning platform. In addition, synchronous learning makes it possible to reach students from different cities or distant regions.

The introduction of the multimedia era has influenced the development of society as a whole. Consequently, modern choreographers face new challenges - multimedia technologies need to be combined with dance art, so that dance numbers can influence the audience and form deeper and more vivid feelings and impressions, and they can also contribute to the diversified development of dance art. The multimedia networked classroom has a variety of functions, including educational feedback now, an interactive, person-centered learning environment, and a variety of content for learning.

Under the influence of multimedia technology, the formation and dissemination of choreographic art "is gradually being introduced to multimedia and begins a profound evolution" (Hsia & Hwang, 2020). At the same time, multimedia forms contribute to the process of art circulation, which affects the fact that relatively small categories of art enter the popular mass market. On the other hand, the increase and expansion of the audience market is also important for the development of creative work. Current researchers prove that the use of multimedia learning tools in integration with other digital technologies can effectively influence the smooth progress of learning and make certain dance knowledge and skills reflected in a live form for students. In addition, it can lead to a "new vitality" in the modern dance system and help to create an image of dance, prepare dance language, form the arrangement of dance segments, etc. (Korobeynikov et al., 2016). The application of forms of a multimedia network environment for teaching dance choreography plays a great role in the formation of students' motivation to learn, increases students' practical skills, and generally improves the quality of education. The process of multimedia education management is an activity in which supervisors adhere to the basic methods, teaching principles, make key decisions, and organize learning work through the prism of logical use of learning resources, multimedia technology, considering the level of skills and knowledge of students and use modern educational theories. This process is implemented in order to achieve the main goals of learning in a computer network environment.

Multimedia learning technology mainly refers to the effective management of learning resources and the learning process through the effective use of various multimedia resources, platforms, systems in order to optimize learning and improve the quality and flexibility of courses (Podliesna et al., 2022). Multimedia is now based on digital technologies, applying the principles of computer language as basic parts, transforming media forms into digital forms so that they can exist as hypertexts. Using multimedia, teachers play the role of organizer, facilitator, mentor, and promoter during the learning process. The main characteristics of a multimedia environment are its interactivity, complexity, and integration (See Table 1).

Although the live demonstration of movements by the teacher is the most intuitive method, the use of multimedia technology has the effect of compensating for the main shortcomings of traditional choreographic instruction. With the further development of multimedia, choreographic creativity can be combined with multimedia, and the creative tools can become more functional and diverse. With multimedia, teachers can store videos or photos related to certain dance movements in some multimedia devices. By showing them to students, students get information and improve their own understanding of a particular dance.

Table 1. Main Features of the Multimedia Environment

Interactivity	Training participants can interact with a variety of media computers, thus users more effective forms, methods of control, and use of information.
Complexity	Predominantly concerns the variety of forms of information materials on multimedia technologies.
	Also, the complexity lies in the diversification and multidimensionality of multimedia technologies.
Integration	All types of multimedia information require integration.

Authors' development

3.3 Using Ensemble and YouTube Platforms to Train Future Choreographers

Students, teachers, and anyone else can use special digital platforms, select from them certain types of data, etc. Among the popular translation tools is the Ensemble platform. The semantic information that is selected for each video contains an amalgamation of the usual project metadata (its title, date of recording, etc.), performance types (rehearsals, performances), and venue information. Each clip generates all the necessary information using a link to the original video, which is later expanded with special terms and spatial zones (areas of space used). Dancers began leaving their videos on Project Ensemble's web platform. When the support team made changes to the programming code so that uploaded videos could be easily found by key parameters, it became apparent that the functioning of the dance project site was holding significantly more video footage than the main server could handle. As a result, the developers decided to move Ensemble to YouTube's video-hosting capacity with moderate privacy settings, allowing full information about the video to be found during a public search. For its part, the YouTube service guaranteed a stable platform, giving it additional popularity through its own brand. The future prospect of digital technology will be that choreographers and dancers will be able to independently upload the videos they have made (filmed both with a professional camera and a smartphone) to YouTube and other similar video hosting sites and social platforms, using them alongside the standard recordings made in dance studios.

The use of various videos in professional training also affects the development of dance directions, styles of choreography related to different experiments of choreographic directions (Vyetrynska, 2017). At the same time, there are special platforms of well-known art schools that use video technology - as a basis for the creation of methodological materials. If previously the process of creating a training video course was costly, now with the proliferation of digital video recording technologies there has been a significant cost reduction. Using modern digital technology, teachers distribute instructional videos based on a single e-learning platform. In addition, it is also important to demonstrate certain movements on applications that implement e-learning: Zoom, Microsoft Teams, Zoom, Teams, Miro, Notion, and others, which are easy to use and have a good interface for learning. The digital training videos can be applied in the following way (See Figure 1).
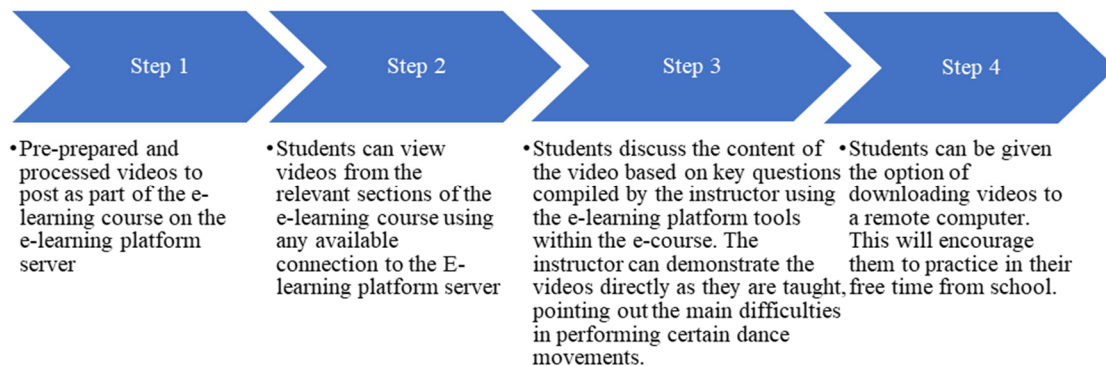

Step 1	Step 2	Step 3	Step 4
• Pre-prepared and processed videos to post as part of the e-learning course on the e-learning platform server	• Students can view videos from the relevant sections of the e-learning course using any available connection to the E-learning platform server	• Students discuss the content of the video based on key questions compiled by the instructor using the e-learning platform tools within the e-course. The instructor can demonstrate the videos directly as they are taught, pointing out the main difficulties in performing certain dance movements.	• Students can be given the option of downloading videos to a remote computer. This will encourage them to practice in their free time from school.

Figure 1. Scheme for the Use of training Videos in Digital Learning

Authors' development

The use of this form of including video materials in the methodological basis of the training course solves many problems formulated earlier, the single digital source of video material simplifies storage and updating, and the use of networking technologies solves the problem of disseminating relevant information. Thanks to this form, the implementation of a person-oriented approach occurs, applicants can view the materials remotely at any convenient time and correct their choreographic errors, besides students create a more comfortable environment for the learning process compared to the group viewing or using the video library. Viewing videos posted as part of an e-learning course on the e-learning platform server creates an analogy to discussing the material being viewed in class. The teacher has every opportunity to manage the open discussion by formulating reference questions.

At the same time, the use of methodological video materials in the process of teaching practical specialized disciplines, which include classical dance, folk and stage dance, historical and everyday dance, etc., video materials act as auxiliary, and their content can promote: formation of proper mechanics, amplitude and dynamics of movements - in case of a reference display of studied elements by high-level artists; learning the sequence of movements of dance class; learning choreography of dances and forming Methodological video materials for practical disciplines, within the training of artistic directors of choreographic collectives, can be aimed at the formation of the correct technique of performance, and also as a reference demonstration, or represent specially prepared fragments focusing in detail on the nuances of performing some or other movements. However, such videos cannot replace the control and correction of actions by the teacher in practical lessons.

3.4 Integration of Virtual Reality with Digitalization. The Use of Computer Games

Clearly, the next step in the digitalization of choreography will be to integrate it with virtual reality (Sun, 2022). Virtual reality as the latest digital technology allows us to analyze fascinating three-dimensional environments from any location. Together with the use of a haptic device, virtuality supports direct manipulation of the object, which in practice is much more important than conventional passive viewing. Many choreographers (students and teachers) resort to the use of virtual games and simulations, which are important during the learning process, relevant higher education, training, independent studies, teaching, etc.

In a passive revision situation with no direct relationship between the body and the target structure, a high reliance on spatial ability may be required. Many European countries use computer simulation principles or virtual three-dimensional training models in training future choreographers (Salo, 2018). In general, virtual reality is becoming more accessible, while various virtual reality systems are becoming more common consumer products that can be used in training. In some European countries, virtual reality is an accepted official form of teaching in certain disciplines. In particular, in order to improve the study of music, students are immersed in musical performances of different genres (country, jazz, classical, etc.) while in several virtual music rooms. Current research shows that the use of such virtual rooms is more effective than traditional lessons with printed materials and passive listening (Alarcón López et al., 2021). Empirical research demonstrates that today's students are more interested in learning in virtual groups Than traditional ones. Consequently, we believe that the use of virtual reality principles in learning contributes to the formation and motivation of curiosity and desire to learn. Note that virtual reality promotes the exploration of a three-dimensional environment from any location. When combined with a haptic device, it allows us to support precise manipulation of the object, which is more effective than passive viewing.

Direct manipulation of various objects in virtual environments can develop individual performance techniques, present internal mental structures, etc. (Freitas, 2006). Such embodied choreographic education or self-education can prepare applicants for proper simulation in the absence of physical structures. In such circumstances, both the already familiar digital photo and video materials and virtual environments can be used to explore choreographic movements, as the appeal to appropriate volumetricity will contribute to a better mastery of dance techniques. For example, modern technology allows the projection of biomechanical constraints onto external objects, thanks to which it is possible to determine the approximate position of an external object relative to one's own body. Therefore, users who quickly manipulate the object get closer coordination between the model and their own body, which will contribute to more effective mastery of the dance material.

Computer games can have an important role in online learning. The combination of didactic material and game model of learning can take place either during serious games or through the use of individual game elements. Researchers have noted that the appeal to the digital game model for learning in higher education institutions has been an important element in the regulation of the educational system (Stevens, 2000). Computer games are used without serious explanations (easy to use), activate personal motivational aspects of the activity, and evoke positive emotions. Secondly, the computerization of the game process improves choreographic skills: reinforcing skills, taking into account dance styles and personal learning abilities of educational applicants, providing the necessary

context for interactivity and appropriate decision-making (Vasiutiak et al., 2021). In addition to effectiveness in the educational process, the use of computer games in choreography improves cognitive abilities, develops emotional intelligence, readiness for prompt decision-making and strategy, cooperation, and the formation of coping skills for a range of problems. For this reason, the potential of games in the teaching of choreography in higher education institutions is still poorly researched, so the further analysis will be required. Thus, opportunities for further use of computer games in curricula present important issues for research and use of pedagogical foundations also in the development of software game software, which should also take into account learning theories, educational standards, and didactic methods, and not just perform entertainment functions.

4. Discussion

According to Alarcón López et al. (2021), the digitalization of the surrounding world also concerns the choreographic arts, branches of higher education, and self-education through the use of the latest technologies. In particular, while researchers have emphasized asynchronous methods of information transfer (the use of video hosting or virtual reality), synchronous learning is also important (Bakhmat et al., 2022). This definition refers to the establishment of quick and immediate feedback between instructors and students (Sapiński & Ciupka, 2021). Responses and reactions are also communicated online, which brings this type of work much closer to traditional choreography teaching methods. Synchronized education for choreographers using digital technology has become heavily used as a result of the spread of the COVID-19 pandemic (Alarcón López et al., 2021). Like other artistic movements, digitalization has brought its own challenges and benefits. The possibilities and powerful aspects of the use of modern technology are relevant and have been explored many times. At the same time, the negative manifestations of the digitalization of choreographic art are less obvious but require analysis. Tytova & Mereniuk (2022) note the challenges of using digital technology. To the difficulties of using digital technology in the choreographic arts can be noted the problem of constant access to the Internet, which is essential for synchronous learning. Just as relevant are the requirements for self-motivation, as digital technology leaves a lot of room for variability and independent work (Tytova & Mereniuk, 2022). Usually, people who have a natural vocation for dance indeed have a high level of interest in choreography classes. Also, digital communications cannot fully replace traditional communication with coaches or mentors, because direct contact with teachers is more important in the arts than in the humanities or technical sciences.

The use of digital platforms may have limitations. For example, certain platforms have limitations for free use and tangible paid functionality that does not satisfy all users (Tytova & Mereniuk, 2022). The use of virtual reality or other computerized tools is also valuable. For this reason, not all of the benefits of digitalization can be taken advantage of. Another relevant problem remains the lack of teacher training and their little interest in using modern technology. It is not just a lack of appropriate competencies, but also a reluctance to develop them because, according to many choreographers, the benefits of learning and working on oneself can only occur with traditional forms of instruction (Filipova & Usheva, 2021). Many coaches and teachers see digitalization as only an auxiliary element that plays a secondary role and has prospects for independent development in the learning process (Rakhimov & Mukhamediev, 2022). Although the fallacy of such beliefs is obvious, the process of abandoning traditional forms of work in choreography is tangibly stretched (Bashynska et al., 2021). It is primarily about the existing psychological framework of perceiving the benefits of technology, the emphasis on certain values and stereotypes that determine the unconscious set of techniques and ways of working of choreographers, preventing the use of innovative, effective digital technology.

In addition, choreographic work, self-education, and mastering new performance techniques in digital spaces is complicated by a significantly different pedagogical reality. In particular, teachers and applicants for choreographic knowledge, all those who wish to develop their dance skills, are obliged not only to master familiar roles but also to learn to work in a digitized environment - with representatives of the modern "digital generation" (Sabadash et al., 2021). The existence of the phenomenon of a "digital divide" between different generations exists among trainers, artists, and educators, as well as among higher education applicants themselves since there is also a tangible difference in digital experience among them (Bondar et al., 2019). The existence of this situation leads to the complication of the use of digitalization in choreographic work, both academic, artistic, and performing.

Barriers to digitalization are also administrative in nature. First of all, we are talking about the conservatism of normative documents, which are not adapted to the use of digital technology, have many outdated requirements in the organization of training and teaching, etc. If individuals working on their own choreographic abilities are not burdened with the implementation of certain norms and regulations, the educational institutions, coaches must work

within the framework defined by regulatory decrees, which in conditions of active use of the Internet is extremely difficult (Gumenyuk et al., 2021).

At the same time, the increasing popularity of digital technologies in the choreographic arts has contributed to the emergence of many new resources. Dance as an art form is influenced by digitalization shows people's emotions and points to hidden contents through gestures and images. Dance choreography using multimedia technology is evolving, therefore, in line with modern teaching requirements, changes in teaching concepts, adoption of modern solutions, and perception of trends. Although live teaching presentations or contemplation of the work of masters remain the most intuitive methods, turning to the potential of multimedia technologies makes it possible to compensate for certain established shortcomings in the traditional form of choreographic education. This process has absorbed the idea of classical training in choreography, focused on the aspirant of higher education, and allowed future dancers to develop, improvise, explore on their own. Further integration of digital technology into choreography will indeed require further analysis.

5. Conclusions

Thus, digitalization is a current trend in the field of choreographic art and has its effect on it. Under the influence of multimedia technology, dance performances are becoming more popular in the world, and the growth of interested audiences leads to new forms of artistic creation. Turning the advantages of multimedia tools, together with other digital technologies, effectively influences the progress of the teaching organization. In particular, various materials that are posted on popular video services on the Internet have the ability to supplement, enrich the process of providing choreographic knowledge, skills, and abilities, and promote the development of practical work skills. Special platforms for digital training have been formed that use video technology as the basis for the formation of methodological materials. While some time ago the process of forming video courses was valuable, modern technology is much cheaper to use. An important aspect has become the integration into choreography teaching of resources that conveniently and understandably implement e-learning (Zoom, Microsoft Teams, Miro, Notion, and others).

The mechanism of using video materials in teaching choreography has been developed:

1. Post the prepared and processed videos on appropriate e-learning platforms.

2. Students can work with these videos using any option for adding them to the E-learning platform servers.

3. Discussion of the content of the video materials based on the questions generated by the teacher, use of digital control tools. Additional emphasis on difficulties in performing dance moves.

4. Enabling students to download videos for a private digital archive, which will facilitate practice in their free time.

Using digital resources, teachers take on the roles of organizers, assistants, mentors, and promoters. At the same time, the main characteristics of a multimedia environment are interactivity, complexity, and integration. The relevance of turning to digital virtual reality techniques was noted, which will probably be the next step in integrating high technology into the world of art.

The study of the potential of games in teaching choreographic art in higher education institutions has not yet been adequately investigated and requires further analysis. Therefore, the use of computer games in the curriculum is important. Pedagogical principles and theories of learning should be taken into account in the development of software games to enable the effective use of games in the educational process, and not just use them as a means of entertainment.

The digitalization of choreography has its disadvantages, in particular, the lack of direct communication with mentors, which plays a significant role in the training of high-class specialists. As of today, the possibilities for such training, even taking into account the development of digital technologies, have not been fully established. Obviously, further, unexplored technology development will allow us to reassess the role of digitalization in dance education in a new way.

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