

ART TECHNOLOGIZATION IN THE CONTEXT OF THEATRICAL SCIENCE DEVELOPMENT

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Abstract: *The current article is devoted to the issue of art technologization in the context of theatrical science development. The author recognizes that digital technologies are currently one of the imperative dominants of sociocultural transformations. Being developed by a technological progress towards continuous optimization, it gains more and more potential to change different sociocultural spheres, having opportunities to move away from technical inventions of the past. In the 20th century, as a result of a digital revolution, the innovative sociocultural phenomenon – a digital culture, and then its derivative digital art was formed. Eventually, it took the major part of a cultural material generation area. This statement is immediately extrapolated to the sphere of theatrical activity where technological experiments emerged their full blown last century, gaining, however, a new form in the 21st century. Based on this fact, the author made a hypothesis that the field of digital theater is reasonable to get autonomized, primarily for the benefit of theatrical science as from a practical perspective – detachment has already occurred. This hypothesis is proved by a number of arguments that allows determination of the considered category. As a result, conclusion is drawn that fulfillment of two key requirements is important to refer one creative activity or another to a digital theater: this practice shall be immediately connected with digital informational space and the end work of art, i.e. a performance, shall be recognized as a cultural product within one of the art paradigms.*

Keywords: theatrical science, digital theater, digital art, digitalization, media technologies.

A practical interest for art technologization issues is caused by a sociocultural context of new cognitive environment caused by formation and development of post-industrial society against the background of information and digital revolution. Formation of this society is driven by rapid expansion of conceptually new digital technologies¹. There are deep sociocultural transformations in all spheres of modern society; changes are incrementally piling up and affect not only the sociocultural sphere but people as well. Digital-technologies influence a way of life, values and physicality of a modern person considerably changing modes of life. The power of digital technologies emerges full blown to problems

¹ T. V. Portnova, “Historical aspects of project technologies development and opportunities for their use in scenic arts”, in *Space and Culture, India*, vol. 6, no. 4, 2018, p. 48-56.

concerning estimated effects from their introduction. Respectively, the public need to be aware of causes and effects of digital technology impact on people and society is principal. However, knowledge available on their diversified impact on sociocultural systems is mostly of summative, descriptive and futurological nature that does little to solving appearing social, cultural, mental and educational issues^{2,3}.

The need to have knowledge on peculiarities of interaction between digital-technologies, societies and arts is also triggered by philosophy, philosophy of culture in particular⁴. In post-industrial society, there is a considerable increase of the so-called "contemporary art" or "actual art" importance significance of which can be noticed in the expressive spirit occurring "here and now", representing the live experiment not duplicating the existing standards, having unconventional, innovative nature, enormous potential of cultural criticism. The American modern art analyst R. Krauss was fair to say that contemporary art is characterized by symptomatic temporal fullness, and its artifacts mark sociocultural processes of day-to-day reality⁵. Moreover, commercialization processes referred to contemporary art and triggered by digital-technologies provoke new discussions, ethical in nature in particular. Simultaneously, there is a scientific ethos transformation. Social dynamics of science is correlated with transition from classical to nonclassical and post-nonclassical scientific worldview, increase of nonclassical methodology significance and emergence of post-nonclassical methodology⁶. This factor makes it possible to consider theatrical science and society consuming a cultural digital product as complex self-organizing systems. In a post-nonclassical methodological paradigm, the emphasis is laid on evolutionary world studying, on procedurality achieved by means of introduction of irreversibility in time. All these cause the need to update traditional methods and techniques to

² G. V. Anatolyevna, S. Butt, G. R. Thakur, S. Zaheer, Y. F. M. Kra, N. K. Baah, B. K. Baffour, M. Usman, "Using mobile technology in modern teaching", in *International Journal of Mechanical Engineering and Technology*, vol. 9, no. 9, 2018, p. 1550-1556.

³ K. Nurgali, K. Assanov, G. Shashkina, M. Zhumabekov, F. Kultursynova, "The concept of dionysism in the legacy of Friedrich Nietzsche and Vyacheslav Ivanov", in *European Journal of Science and Theology*, vol. 14, no. 2, 2018, p. 99-108.

⁴ V. Kulikov, K. Iklassova, A. Kazanbayeva, "Entropy based decision making method in managing the development of a socioinformational system", in *Journal of Theoretical and Applied Information Technology*, vol. 98, no. 1, 2020, p. 92-102.

⁵ E. R. Krauss, *The originality of the avant-garde and other modernist myths*, MIT Press, Cambridge, 1986.

⁶ K. R. Nurgali, "Representation of ancient times in Kazakh historical novel", in *Life Science Journal*, vol. 10, no. 11, 2013, p. 298-301.

research relationships between theatrical science and society consuming a cultural digital product, between theatrical science and digital technologies⁷.

In the middle of the last century, information technology expansion resulted in digital culture formation as a wide range of various applications of information technologies in material and mental spheres of society life. Intensification of a technical adiscourse in culture was followed by the emerged innovative forms of convergence socio-humanistic knowledge and innovative technologies. The ways of digital-culture development include various in nature and content practices of scientific knowledge (the digital humanities, a contextual epistemologiya), education (gamification, art&science) and art (post-digital art, video installations, performance online broadcasts).

Literature review

In the course of development of various digital-culture lines as cross-disciplinary research areas, various methodological approaches were created. Two basic trends can be distinguished from this variety: humanitarian and technocratic. Technocratic approach to digital culture research is presented in historical and sociological researches, in transhumanism movement, in futurological projects of Russian and foreign researchers, in philosophical discourse of individual authors, in the sphere of nano-bio-informational cognitive and social technology design (NBICS technologies). Historical and social approach⁸ is focused on digital culture periodization as a result of information revolutions. His representatives lay emphasis on significance of forms of social, legal and political culture, on virtualization of social communication and practices as a transformation source in culture⁹, digital technologies for social

⁷ T. V. Portnova, "Principles and opportunities of the study of pictorial heritage in the practice of choreographic education", in *Journal of Siberian Federal University-Humanities and Social Sciences*, vol. 11, no. 12, 2018, p. 2043-2055.

⁸ A. Giddens, *Runaway World: How Globalization is Reshaping Our Lives*, London, Profile, 1999; D. Bell, *An Introduction to Cybercultures*, New York, Routledge, 2005; J. Naisbitt, *Megatrends: Ten new directions transforming our lives*, New York, Warner books, 1984; M. Castells, *The Power of Identity, The Information Age: Economy, Society and Culture*, Hoboken, Wiley-Blackwell, 2010

⁹ M. Castells, *The Power of Identity, The Information Age: Economy, Society and Culture*, Hoboken, Wiley-Blackwell, 2010.

framework research in information society¹⁰. Transhumanism movement that united artificial intelligence designers, biotechnologists and technocratic-oriented philosophers in Russia and the West has such forms as Christian, democratic, socialist transhumanism, anarchotranshumanism, postgenderizm, singlyritarizm and so forth¹¹. The digital culture issue is discussed in the context of use of NBICS convergence advances for human nature optimization on the way to post-human evolution stage. Through genetic engineering technologies and social design, adherents of this movement seek to change a form of a human genome to diagnose an ailment, get immortality and to achieve other goals, to operate natural social processes¹². In general, this approach assumes devaluation of a human being, nature, a planet life as whole, abandon of supreme human entity symbols. In futurological concepts¹³, digital culture study is based on the ideas of technoutopia with the elements of science-fiction prose, methodology of scientific and technical development forecasting as the base for human nature transformation and social and cultural digitalization, the idea of social design and constructivism. The project on optimization of a human in terms of human nature delimitation becomes the primary objective for technological transformations. Priority of this project is biotechnologies¹⁴. In his work "Our post-human future", F. Fukujama considers the risks regarding intervention into a human genome: "it could be the world where any concept of "humanity" is vanished because we will mix human genes with so many genes of other species so that we will not be able to understand what a human being exactly is"¹⁵. On the other hand, in the context of digital revolutions the ideal of freedom is

¹⁰ J. Naisbitt, *Megatrends: Ten new directions transforming our lives*, New York, Warner Books, 1984.

¹¹ T. B. Medvedev, "A technological utopia and forms of its representation in modern culture: progressivism, transhumanity and digital utopia", in *Scientific Journal of the Belgorod State University. Series: Philosophy. Sociology. Law*, vol. 20 (115), no. 18, 2011, p. 55-61.

¹² D. I. Dubrovsky, *The global future-2045. Convergent technologies (NBICS) and transhumanistic evolution*, Moscow, Scientific Council of the Strategic social movement "Russia 2045", 2013.

¹³ F. Fukujama, *Our Posthuman Future: Consequences of the Biotechnology Revolution*, London, Picador, 2003; M. Kaku, *Physics of the Future: How Science Will Shape Human Destiny and our Daily Lives by the Year 2100*, New-York, London, Toronto, Doubleday, 2011.

¹⁴ N. E. Amatova, "Social implications from NBIC technology introduction: risks and expectations", in *Universum: social sciences*, vol. 8, no. 9, 2014, p. 10.

¹⁵ F. Fukujama, *Our Posthuman Future: Consequences of the Biotechnology Revolution*, London, Picador, 2003.

doomed due to its utopianism: the higher state of technologies is, the less is the degree of human freedom. Technocratic-focused philosophical discourse of digital culture was substantially studied by D.V. Galkin¹⁶. According to him, the model of digital culture study should solve two following problems: to define prerequisites of its formation and carry out analysis of its key phenomena including a personal computer, new media, virtual reality systems, the Internet and so forth. Their decision relies on the principles of technological determinism, transhumanity, post-structuralism and media archeology.

Based on the humanitarian approach, the model of digital culture study has various research levels and objectives. Thus, philosophical discourse of digital-culture perspective¹⁷, A.G. Dugin¹⁸, D.E. Prokudin and E.G. Sokolov¹⁹ are focused on worldview and ontologic issues due to expansion of digitalization processes in culture followed by transformation of values, images, realities, change in communication nature and behavioral models. According to D.E. Prokudin and E.G. Sokolov, the essence of digital culture is in transition from analog to digital formats which are followed by transformation of a cultural hierarchical structure into its forms and network communication clustering; symbolical order elimination and order of things establishment²⁰. Synergetic and anthropological approach to a digital culture study is shown in S.S. Horuzhy's works²¹. The author dwells on these issues based on human history and social system humanization. An imperative task here is to hold an analysis of three conceptual models of human evolution as a digital culture creator – transitional forms from a human to a virtual human and a post-human. S.S. Horuzhy shifts his

¹⁶ D. V. Galkin, “Technical and art hybrids or the work of art in the era of its computer production”, in *Humanitarian Informatics*, vol. 3, 2007, p. 40-53.

¹⁷ N. L. Sokolova, “Digital culture or culture in the digital age?”, in *International Journal of Cultural Research*, vol. 3, no. 8, 2012, p. 6-10; V. A. Kutyrev, *Culture and technology: the struggle of worlds*, Moscow, Progress-Traduction, 2017.

¹⁸ A. G. Dugin, *Sociology of imagination. Introduction to structural sociology*, Moscow, Academic project, Trixta, 2010.

¹⁹ D. E. Prokudin, E. G. Sokolov, ““Digital culture” VS “analog culture””, in *St. Petersburg State University Bulletin*, vol. 17, no. 4, 2013, p. 83-91.

²⁰ *Ibidem*.

²¹ S. S. Horuzhy, L. G. Fishman, N. A. Komleva, A. V. Manoylo, V. E. Bagdasaryan, I. V. Radikov, S. N. Fedorchenko, A. V. Abramov, “Post-human, Virtual people and their society”, in *Bulletin of the Moscow State Regional University (Online Journal)*, vol. 3, 2016. Available at: https://istina.cemiras.ru/media/publications/article/5db/53b/26484847/Kruglyij_stol_Vestnik_MGOU_publicatsiya.pdf

focus from the analysis of technologies as a base for cultural transformations in technocratic discourse to the analysis of human transformation as an ontologic creature which defines attitude to life. A change of a human who belongs to anthropological and social reality is seen in practices of scientific and technical world development and in their core world views.

In general, representatives of the above-mentioned approaches to a digital culture study sought to emphasize key changes which caused digitalization processes in culture in general and in its certain areas based on their values (humanitarian or technocratic focus) and research methodologies. As a result, the concept of a digital culture is defined either too broadly as a stage in information civilization development indicating transition to artificial life forms, or lopsidedly as a variety of aspects and practices of information society generated by information technology convergence and socio-humanistic knowledge.

Digital art sphere being an independent institution of digital culture is a complex and versatile phenomenon studied in the context of various research fields. This statement is justified by the fact that the use of digital technologies enabled art being a complex institution to abandon understanding of the work as a material object and recognition of singularity as an indispensable attribute of originality. In addition, having refused objectification of the work as a cultural product in a physical material, digital art managed to maintain and visualize the nature of sociocultural communication.

Digital technologies not only brought art to a whole new level, having radically transformed its structure, but also defined the need to reconsider the role of art in culture and the role art institutions (musical, theatrical, graphic) in the system of arts. The above mentioned statement is directly traced in the fine arts aspect where art mentality had a considerable impact on the use of digital technologies, having in many respects enabled constitutionalization within a modern esthetics of such fields as informational esthetics²², a genetic esthetics²³, algorithmic esthetics²⁴, computing esthetics²⁵, simulation esthetics²⁶, virtual esthetics²⁷.

²² M. Bense, *Einführung in die Informationsästhetik*, Köln, Kunst und Kybernetik, 1968; H. Frank, "Gesellschaftliche Aspekte der Computerkunst", in *Bit International*, vol. 7, 1969, p. 5-10.

²³ M. Bense, *Aesthetica. Einführung in die neue Aesthetik*, Baden Baden, Agis, 1965.

²⁴ G. Stiny, J. Gips, *Algorithmic Aesthetics: Computer Models for Criticism and Design in the Arts*, London, Los Angeles, University of California Press, 1978.

Art technologization studies have accompanied a digital art phenomenon during the entire evolution process. As early as in the 70th, the starting era of total digitalization outlined its narrower field – digital art, having initiated corresponding scientific research activities. Nevertheless, being rather a new problematic field of a modern esthetics, the majority of attempts of philosophical, art and esthetic and sociocultural understanding of digital art were mostly undertaken by foreign scientists. S.V. Yerokhin admits that their research left behind the contribution which Russian researchers have made to digital art formation²⁸.

However, the scientific base of the institution under the study has sufficiently developed in recent years, which is triggered by the broad nature of the studied concepts: the works created by J. Reichard²⁹, D. Frank³⁰ are devoted to separate stages of digital art development; the works created by O. Gorunova³¹, G. Cox³², P. Tayer³³, E. Huhtamo³⁴ are devoted to separate forms and fields of art, such as software art and code

²⁵ P. Machado, J. Romero, B. Manaris, “Experiments in computational aesthetics-an iterative approach to stylistic change in evolutionary art”, in J. Romero, P. Machado (eds.), *The art of artificial evolution: a handbook on evolutionary art and music*, Berlin, Springer, 2008, p. 311-332; B. Atiyeh, S. Hayek, “Numeric expression of aesthetics and beauty”, in *Aesthetic Plastic Surgery*, vol. 32, no. 2, 2008, p. 209-216.

²⁶ G. R. Greenfield, “Art by Computer Program. Programmer Creativity”, in *Digital Creativity*, vol. 17, no. 1, 2006, p. 25-35.

²⁷ T. Botz-Bornstein, “Virtual Reality: The Last Human Narrative?”, in *Brill, Rodopi*, 2015. Available at: <https://philpapers.org/rec/BOTVRT>.

²⁸ S. V. Yerokhin, *Digital computer art*, Saint Petersburg, Aleteya, 2011.

²⁹ J. Reichard, “In the Beginning”, in P. Brown, Ch. Gere, N. Lambert, C. Mason (eds.), *White Heat Cold Logic: British Computer Art 1960-1980*, Cambridge, The MIT Press, 2008, p. 71-81.

³⁰ D. Frank, “Visual Intelligence: The First Decade of Computer Art (1965-1975)”, in *Leonardo*, vol. 19, no. 2, 1986, p. 159-169.

³¹ O. Gorunova, “From text to media. Discursive features of Internet”, in *View from the East*, Moscow, MediaArtLab, 2000, p. 99-103.

³² G. Cox, A. McLean, A. Ward, “Coding Praxis: Reconsidering the Aesthetics of Code”, in O. Gorunova, A. Shulgin (ed.), *Software Art & Cultures*, Aarhus University Press, 2004, p. 161-174.

³³ P. Tayer, *On Being: Discussion*, 2008. Available at: <http://rhizome.org/discuss/view/38040>

³⁴ E. Huhtamo, “Web Stalker Seek Aaron: Reflections on Digital Arts, Codes and Coders”, in C. Schopf, G. Stocker (eds.), *Code: The Language of our Time*, Linz, Hatje Cantz, 2003, p. 110-118.

art; the works created by R. Green³⁵, T. Mogilevskaya³⁶, A. Shulgin³⁷ are devoted to network art and browser art; studies created by K. Sims³⁸, P. Weibel³⁹ are devoted to generative and evolutionary art; the works created by J. Briggs⁴⁰, A.V. Voloshinov⁴¹, M. Turner⁴² are devoted to fractal art. Cross-disciplinary approach to digital art consideration is presented by the studies of L. Bertalanffy⁴³, D. Macko, M. Mesarovic, Y. Takahara⁴⁴, I.A. Prangishvili⁴⁵, V.I. Sadovsky, Y.A. Urmantsev⁴⁶, E. G. Yudin, et al. Nevertheless, relative research novelty in digital art field, despite of heavy increase in publications and fundamental works, predetermines a set of gaps, collisions, inaccuracies and ambiguities. Thus, for example, the concept of a digital theater as a major component of digital art institution is insufficiently studied due to its versatility in general. Issues of theatre technologization and digitalization in general were studied in the works of such famous authors as T.V. Astafyeva⁴⁷, R. Bart⁴⁸, J. Baudrillard⁴⁹, S. Dixon⁵⁰, M. Frenco⁵¹, D. Gindt⁵², E.V.

³⁵ N. Green, "How Everyday Life Became Virtual Mundane work at the juncture of production and consumption", in *Journal of Consumer Culture*. SAGE Publications, vol. 1, no. 1, 2001, p. 73-92

³⁶ T. Mogilevskaya, "Network art dynamics in Russia", in *Art magazine*, vol. 28-29, 2000, p. 53-57.

³⁷ A. Shulgin, "Projects on the Internet", in *Art magazine*, vol. 10, 1996, p. 39-44.

³⁸ K. Sims, "Artificial Evolution for Computer Graphics", in *Computer Graphics*, vol. 25, no. 4, 1991, p. 319-328.

³⁹ P. Weibel, "About Genetic Art", in *Ars Electronica Catalogue. Artificial Life-Genetic Art*, New York, Vienna, Springer, 1993, p. 128-131.

⁴⁰ J. Briggs, *Fractals: The Patterns of Chaos: Discovering a New Aesthetic of Art, Science, and Nature*, New York, Simon & Schuster, 1992.

⁴¹ A. B. Voloshinov, "Fractal as a category of aesthetics", in *Aesthetics of scientific knowledge*, Moscow, MGU, 2003, p. 75-78.

⁴² M. J. Turner, J. M. Blackledge, P. R. Andrews, *Fractal Geometry in Digital Imaging*, Cambridge, Academic Press, 1998.

⁴³ L. von. Bertalanffy, "An Outline of General System Theory", in *The British Journal for the Philosophy of Science*, vol. 1, 1950, p. 2.

⁴⁴ M. D. Mesarovic, D. Macko, Y. Takahara, *Theory of Hierarchical, Multilevel Systems*, Cambridge, Academic Press, 1970.

⁴⁵ I. V. Prangishvili, *System approach and system-wide patterns*, Moscow, SINTEG, 2000.

⁴⁶ Yu. A. Urmantsev, *General theory of systems: state, application and development prospects. System, symmetry, harmony*, Moscow, Mysl, 1988.

⁴⁷ T. V. Astafyeva, *New technologies in contemporary staging: as exemplified in theater art of St. Petersburg, 1990-2010*, St. Petersburg, St. Petersburg University of the Humanities and Social Sciences, 2011.

⁴⁸ R. Bart, *Fashion system. Articles on the semiotics of culture*, Moscow, Publishing House of Sabashnikov, 2003.

⁴⁹ J. Baudrillard, *The Vital Illusion*, New York, Columbia University Press, 2000.

Levshina⁵³, D. Nilsen and A. Nilsen⁵⁴, I. Ovchinnikov⁵⁵, V. Pavlyuk⁵⁶, F. Popper⁵⁷, J. Sterne⁵⁸, F. Hawkins⁵⁹, V.M. Shepovalov⁶⁰, M. Schwarz⁶¹, S. Shternin⁶² and others.

Thus, S. Dixon⁶³ studied evolution and peculiar digital media influence on the "living" theater and dance, new forms of interactive performance developed in installations, on CD ROM and on the Internet. In his work "Digital Performance", he studied the history of these the practices evolution, described key performers and performances in detail, analysed theoretical, art and technological contexts of this new media art form. The issue of a digital performance phenomenon in the context of theater performance was also examined in depth by H. Varley-Jamieson, S. Brodkhart, M. Kozi, G. Dzhiannachi, D.J. Bolter and R. Grusin, P. Levi, K .L. Salter and others. The thesis research "Technology; Theatres, Plays and Performance"⁶⁴ by

⁵⁰ S. Dixon, *Digital Performance: A History of New Media in Theater, Dance, Performance Art, and Installation*, Cambridge, MIT Press, 2007.

⁵¹ M. Frendo, "Ancient Greek Tragedy as Performance: The Literature-Performance Problematic", in *New Theatre Quarterly*, vol. 35, no. 1, 2019, p. 19-32.

⁵² D. Gindt, *Bastard or Playmate? Adapting Theatre, Mutating Media and the Contemporary Performing Arts*, Amsterdam, Amsterdam University Press, 2012.

⁵³ E. A. Levshina, "Record of theatrical affairs of the frontier of centuries: 1975-2005", in G. G. Dudamyan (ed.), *Upgrading and retraining. Cultural workers (INTERSTUDIO)*, St. Petersburg, Baltic seasons, 2008.

⁵⁴ D. Nilsen, A. Nilsen, "Performing arts: theater, dance, and music", in *The language of humor: an introduction*, Cambridge, Cambridge University Press, 2018.

⁵⁵ I. Ovchinnikov, "Theatre and Digital Revolution", in *Scene*, vol. 4, 2004, p. 15-17.

⁵⁶ V. Pavlyuk, "Computer for theatre artist-"crutches" or instrument", in *Scene*, vol. 4, 2004, p. 11-12.

⁵⁷ F. Popper, *From technological to virtual art*, Cambridge, MIT Press, 2007.

⁵⁸ J. Sterne, "Thinking the Internet: Cultural Studies versus the Millennium", in S. Jones (ed.), *Doing Internet Research: Critical Issues and Methods*, Sage, Thousand Oaks, CA, 1999, p. 257-288.

⁵⁹ E. Hawkins, D. Avon, *Photograph: Technique and Art*, Lane, Moscow, World, 1986.

⁶⁰ V. M. Shepovalov, "The Formation of the Theory of Scenography and its Role in the Science of Theatre", in *Art and Aesthetic Culture: Collection of Scientific Works*. St. Petersburg, St. Petersburg Institute of Theatre, Music and Cinema, 1992, p. 149-157.

⁶¹ M. Schwarz, "E-Culture: Crossovers and Challenges", 1968. Available at: <http://eculturefactory.de/download/schwarz.pdf>.

⁶² S. Shternin, "Information support of the theatre process", in *Scene*, vol. 4, 2004, p. 5-9.

⁶³ S. Dixon, *Digital Performance: A History of New Media in Theater, Dance, Performance Art, and Installation*, Cambridge, MIT Press, 2007.

⁶⁴ H. W. Walton, "Technology; Theatres, Plays and Performance", 2011. Available at: <https://ru.scribd.com/document/88790324/Technology-Theatres-Plays-and-Performance>

H.V. Walton is of a special interest in which the author studies three digital technology formats in theater: "Digital technologies and theaters" that considers Internet influence on theater in terms of marketing and its participation in art, analyzes some theater websites, Digital Theater and National Theatre Live platforms; "Technologies and the Internet in modern plays" centers around the play by Tim Fontan "Sex addicts" where the global network is used as an online communication tool with a spectator (life), it centers around the projects developed by modern playwrights for being introduced in their work⁶⁵.

It is important to emphasize that the issue of classical theatre performance typology is still insufficiently studied today in the context of a digital theater, as well as in the context of an immersive (interactive) theater, a documentary theater, including a verbatim technique, a "total" theater the concept of which was formulated last century by E. Piskator⁶⁶ and V. Gropius⁶⁷, a promenade theater and others.

A famous historian studying art and technologies, F. Popper⁶⁸ generalized historical experience of relationship between technology and various forms of art, especially regarding the period since the end of the 60th up to the beginning of the 90th of the last century. In his works "Sources and kinetic art development" and "Art, action and participation", the researcher described what importance kinetic art has when introducing optical movements and creating communications between science, technology, art and environment. F. Popper was the leader in humanization of this cross-disciplinary synthesis. It is important to stress that the scientist was among the first to use the term of "virtual art" concerning an art phenomenon as such, performed with the use of technologies developed in the late eighties. These technologies enabled focusing on the image and interacting with it. In this regard F. Popper referred to a fascinating interactive virtual reality⁶⁹.

By the beginning of the 21st century, many designers, decorators, theatrical artists, production directors had begun experimenting with various elements within the theater and there was a question regarding these elements' hierarchy and functions. Some of the most important decisions and discoveries were taken and done by practicing theorists.

⁶⁵ *Ibidem*.

⁶⁶ E. Piskator, *Das Politische Theater*, Berlin, 1968.

⁶⁷ W. Gropius, *The New Architecture and the Bauhaus*, London, Faber and Faber, 1935.

⁶⁸ F. Popper, *From technological to virtual art*, Cambridge, MIT Press, 2007.

⁶⁹ *Ibidem*.

Not only stage designers, artists, but also directors, playwrights who realized spatial multimedia perspectives could use these new elements with the passage of time, creating a narration outline, changing structure of the work and adding new ways of expression by means of sound and thematic digital displays to strengthen impact on the audience. This aspect is widely presented in the works of both foreign, and Russian researchers, including I.A. Aldoshina⁷⁰, E.V. Ampelogova⁷¹, R. Brikmann⁷², V.V. Bychkov⁷³, S., M. Heim⁷⁴, E.A. Levshina⁷⁵, I. Ovchinnikov⁷⁶, V. Pavlyuk⁷⁷, A. Porai-Koshitz⁷⁸, N. Rewa⁷⁹, O.V. Shlykova⁸⁰, V.M. Shepovalov⁸¹, S. Shternin⁸², T.E. Shekhter⁸³. D.V. Galkin⁸⁴ emphasizes that multimedia components can influence cast breakdown between virtual characters and real actors, provided that virtual characters are displayed in multimedia portals. Apart from multimedia portals, new functions of space transforming passive space into active are coming into life. Uneasy relations between digital technologies and art, theatre art in particular, have currently changed the

⁷⁰ I. A. Aldoshina, V. D. Soshnikov, V. F. Posnin, A. B. Denisov, P. V. Ignatov, I. R. Kuznetsov, *Multimedia Art: Multimedia and technique*, St. Petersburg, SPbGUP, 2010.

⁷¹ E. Ampelogova, "Not WORD's one", in *Scene*, vol. 4, 2004, p. 9-11.

⁷² R. Brikmann, *The Art and Science of Digital Compositing*, New York, Morgan Kaufmann, 1999.

⁷³ V. V. Bychkov, N. B. "Mankovskaya Virtual Reality as a Phenomenon of Modern Art", in *Aesthetics: Yesterday. Today. Always*, vol. 2, 2006, p. 32-60.

⁷⁴ M. Heim, *The Metaphysics of Virtual Reality*, New York, Oxford University Press, 1993.

⁷⁵ E. Levshina, "Computer at the Theater, today, tomorrow", in *Scene*, vol. 4, 2004, p. 4-5.

⁷⁶ I. Ovchinnikov, "Theatre and Digital Revolution", in *Scene*, vol. 4, 2004, p. 15-17.

⁷⁷ V. Pavlyuk, "Computer for theatre artist-"crutches" or instrument", in *Scene*, vol. 4, 2004, p. 11-12.

⁷⁸ A. Porai-Koshitz, "We will master CATIA", in *Scene*, vol. 5, 2005, p. 46-49.

⁷⁹ N. Rewa, *Scenography in Canada: Selected designers*, Toronto, University of Toronto Press Incorporated, 2004.

⁸⁰ O. V. Shlykova, *Multimedia Culture*, Moscow, FAIR-PRESS, 2004.

⁸¹ V. M. Shepovalov, "Personal Computer-Head of Production Part", in *Scene*, vol. 4, 2004, p.13-17.

⁸² S. Shternin, "Information support of the theatre process", in *Scene*, vol. 4, 2004, p. 5-9.

⁸³ T. E. Shekhter, *Art of Multimedia. Multimedia and Technology*, St. Petersburg, St. Petersburg humanitarian un-t of labor unions, 2010.

⁸⁴ D. V. Galkin, "Digital Culture: methodological issues of cultural dynamics research from digital automatic machines to techno bio creatures", in *Cultural Research International Journal*, vol. 3, no. 8, 2012, p. 11-16.

forms of these relations into the ones where "a technological base often almost completely predetermines esthetics"^{85,86}.

In addition, challenges of technologization art study in the framework of theatrical science development result from digital technology expansion rate in general – understanding of the effects caused by introduction of innovations used both in staging, and in the system of theatrical product creation literally does not keep up with the happening changes. Today's results of the research on interaction between a human and a machine can be irrelevant tomorrow. It is important to take into account that scientific literature de facto has no uniform, comprehensive insights in digital art. The works presented by researchers are mostly limited, or focus on specific subject domains. Study of art and esthetic environment for digital theater functioning, study of prerequisites for wide digital environment expansion in the staging system and beyond it, consideration of digital theater genesis issue and seeking specific nature of creation, perception and distribution of a cultural digital-product are all far-promising.

Methodology

Regarding cross-disciplinary aspect, consideration of a digital art phenomenon and its component – a digital theater, defined the need to use the system approach basic ideas of which were presented in works of the famous Russian and foreign scientists and for consecutive use of which application of the following basic methods is justified: a method of historical and cultural analysis that enabled formulation of the key digital theater evolution stages, a method of comparative analysis that enabled comprehensive review of a digital-art phenomenon, a synthesis method combining interpreted and reconstructed material to the next level, a method of structure-function analysis that enabled approaching the essence of a digital art and digital theater phenomenon. Information approach is also important – it embodies a method of scientific knowledge on objects, processes, natural phenomena and society, aspects defining their functional development. Classic methods included

⁸⁵ D. V. Galkin, "Technical and art hybrids, or art, policy and digital technologies in cultural dynamics of the second half of the XX century", in *Humanitarian Informatics*, vol. 4, 2008, p. 50-75.

⁸⁶ K. R. Nurgali, K. M. Baytanasova, J. K. Kishkenbaeva, "Author's role in the literary field by the example of Kazakh literature", in *World Applied Sciences Journal*, vol. 25, no. 9, 2013, p. 1290-1294.

induction, deduction, traduction, idealization, rising from the abstract to the concrete and others. Being focused on the variety of art forms and types, on the distinction between their philosophical intensions, modern theatre arts study obviously faces the whole range of problems to define its temporal and essential locations. The research relevance for this phenomenon is justified by both sociocultural discussion acuteness that goes along with theoretical and practical dynamics of modern theater arts, and traditional axiological focus denial for modern theater artworks based on common perception. The study of this institution, the relevance of which implies the things that take place "here and now", introduces a research into a particular sociocultural discourse, in particular in the system of synthesized imperative elements of reality characterizing a certain order of its constructs⁸⁷.

Placing emphasis on the debatable aspects of both definition understanding, and understanding of the chronological framework of existence of the specified phenomenon, it is important to highlight the use of such terms as "contemporary theater art ". In the world practice, the modern art is called "contemporary art" being translated to Russian as "actual art". According to A.V. Valkovsky⁸⁸, contemporary art characteristics include its contextuality, performativity, procedurality, determination of the work of art. It is complementary to the overall change of relationships between a human and the modern cultural world: a modern culture, as the author reports, "transforms to domination of non-material artwork and human life visualization. While earlier the specific nature of art was defined by a concept, today the specific nature of art is based on literary text peculiarities – peculiarities of art work creation, functioning, presentation perception"⁸⁹.

Results and discussion

In the context of art technologization the above-mentioned components get the status of the synthesized creativity – human and machine creativity. To refer a cultural product to a digital art, D.M. Lopes defines three key characteristics⁹⁰: at first, this product shall be the

⁸⁷ A. S. Zavyalov, *Digital art as a subject of a social and philosophical analysis: thesis by the candidate of philosophical sciences*, Moscow, Moscow State Regional University, 2017.

⁸⁸ A. V. Valkovsky, *Contemporary art as sociocultural phenomenon: essence and social functions*, Volgograd, Volgograd State Medical University, 2014.

⁸⁹ *Ibidem*.

⁹⁰ D. M. Lopes, *A philosophy of computer art*, London, New York, Routledge, 2010.

work of art, in other words, a recognized artistic work within a certain art paradigm; secondly, such product shall be the result of creativity with the use of information technologies; thirdly, it shall be unified by the digital code. From the researcher's point of view, digital art is not a new form of art, but it is a general concept the coverage of which is the field of arts that have been affected by digital devices within the overall trend of technological progress and global development⁹¹. Therefore, the means of digital art form new ways of work creation within the existing art forms. K. Paul appropriately notices that the term "digital art" may hide a myriad of various methods and works; it can be doubtful to use it in order to refer to only one esthetic phenomenon⁹². D.P. Hanolainen agrees with this opinion, referring to digital art as a general concept capable to distinguish the whole field of diversified contemporary art⁹³. The author notes that "any work being a universal digital code and created by means of any digital electronic device, including a digital computer" can be understood as digital art⁹⁴. In the framework of the issue raised in this article, the hypothesis is put forward considering the fact that the field of digital theater art being a digital art element as such is reasonable to get autonomized. This assumption is offered to be justified by three following arguments.

Analysis of the role of digital information space in theatrical activities

The first argument – immediate reference of theatrical activity to digital art is carried out based on the degree of digital informational space involvement. Informational space, according to V.V. Gromadin, is the space in which information is created, moves and consumed⁹⁵. Until a digital theater, the opposition of “spaces” was emphasized with a border, always clearly apprehensible. This border overcoming is a central and deep plot typical creation of which is a valuable determined movement through the space border. Thereby, there is a struggle against the world structure consisting of two antinomic components – internal

⁹¹ D. P. Hanolainen, *Computer art as an art morphology issue*, Moscow, RAS Institute of Philosophy, 2015.

⁹² C. Paul, *Digital Art (World of Art)*, London, Thames and Hudson, 2003.

⁹³ D. P. Hanolainen, *Computer art as an art morphology issue*, Moscow, RAS Institute of Philosophy, 2015.

⁹⁴ *Ibidem*.

⁹⁵ V. V. Gromadin, *Music phenomenon of a digital century*, Moscow, Kazan state conservatory named after N. G. Zhiganov, 2010.

and external space"⁹⁶, – Y.M. Lotman stated. If performance occurrence or existence owes to a digital informational space, such a cultural product can be referred to digital art. Digital space application degree to one performance or another is certain to be different and, in some cases, "digital" marking can cause a set of fair questions. Thus, for example, a digital performance can be understood as a culture product created beyond any time and space, implying online performance broadcast (cyber-performance) of a famous theater which is in thousands of kilometers from the spectator (Broadway HD, Globe Player, Digital Theatre, The Opera Platform platforms and others). In addition, digital performance can be defined as a culture product which becomes a culture product (a unit) only in the context of artificial digital space formulation by means of innovative, particularly integrated technologies, such as 3D-technologies ("Mr. and Mrs. Dream", Dassault Systemes project and Pietragalla-Derouault dance theater, 2018), VR glasses (the VR performance "In search of the author" in the youth theatrical center "Kosmos", 2018), extra reality technologies (Augmented Reality, AR), audiodiscretion ("School of taxpayers" performance by the director N. Pinigin in Janka Kupala National academic theater, 2018), earphones with binaural record ("Other City" performance by the director S. Aleksandrovsky, the Remote Moscow project of the Rimini Protokoll company, 2018) and others. The Russian theatrical personalities presented the third option to domestic audience – in 2017, the Moscow Taganka Theatre launched a unique technology of "virtual reality" VR TICKETS which "will enable any person who hasn't had opportunities to get to the theater owing to, for example, physical limitations or any other reasons to watch a Taganka Theatre performance not leaving the house"⁹⁷.

To prevent such "collisions", it is reasonable to define an aspect to consider for a particular theatrical practice that will be methodologically efficient for a particular performance: in case of performances with insignificant use of digital informational space, it makes sense to hold the research within a theoretical context of other theatrical creativity results. Thus, if a digital performance is considered, it can be studied both in the lens of digital art practices, and as a continuity of theatre performance historical development. According to S. Dixon, a "digital performance"

⁹⁶ Y. M. Lotman, "On meta language of typological cultural descriptions", in *Articles on semiotics of culture and art*, St. Petersburg, Academic project, 2002.

⁹⁷ I. V. Aleksimova, "Taganka Theatre is the first to launch "virtual reality" technology VR TICKETS", 2017. Available at: <https://tass.ru/kultura/4505460>.

concept includes all performatory works where computer technologists play the key, not the supporting role when forming content, technique, esthetics or form⁹⁸. Thus, the digital performance concept embraces theatrical, dancing and performatory stage production ("The Gertrude Stein Repertory Theatre", "Kunstwerk-Blend" and others) which use pictures, robots or virtual reality processed or managed by means of a computer; involve sensor or activating computer devices or telematic technologies; and performatory works, access to which is provided via the computer, including cybertheatre events, interactive services, the virtual Universes, computer games. Evolution of a digital performance, being a digital art phenomenon, can be traced from antique *Deus ex machina* to Wagner's *Gesamtkunstwerk* and experiments held by L. Fuller at the end of the 19th century, and by O. Shlemmer in the 1920th. There is a close link among media performances and vanguard heritage—the beginning of the 20th century, theories and practices of futurists, constructivists, dadaists, surrealists and expressionists. Simultaneously, according to S. Dixon⁹⁹, performatory theories and practices of the Italian futurists of 1909-1920 formed the fundamentals of those philosophical and esthetic strategies which can be seen in digital performances today: illogicalness, parallel action, photodynamism, significant use of lighting, virtual actors, "synthetic theater" and machine cult.

In addition, the performances "Ubu Krol" and "Binge King" by Filippo Tommaso Marinetti should be mentioned. He staged them as an experiment in Paris at the beginning of the 20th century, then he continued staging non-standard performances in Italy, which inspired cultural figures globally to review the fundamentals of art¹⁰⁰. F. Marinetti introduced the concept of "declamation" which was enthusiastically adopted by futurists. He expressed all his ideas and thoughts on performance evolution not only through his works, but through the numerous "manifestos" comprising guides for artists to reconsider their approaches to art¹⁰¹. The work "Theater – a variety show" is worth to be mentioned. It became a futuristic theater sample with noise music, mechanical movements and synthetical elements.

⁹⁸ S. Dixon, *Digital Performance: A History of New Media in Theater, Dance, Performance Art, and Installation*, Cambridge, MIT Press, 2007.

⁹⁹ *Ibidem*.

¹⁰⁰ U. Apollonio, *Documents of 20th Century Art: Futurist Manifestos*, New York, Viking Press, 1973.

¹⁰¹ A. Haycock, *Crisis of Brilliance*, London, Old Street Publishing, 2009.

Along with futurism, dadaism developed. H. Ball, H. Arp, T. Ttsar, E. Hennings and H. Richter are considered to be the key figures of this art movement. In 1916 in Switzerland, H. Ball together with E. Hennings launched "Cabaret Voltaire" where Vasily Kandinsky, Franz Werfel and Alfred Liechtenstein's poems were recited. After the cabaret had been closed down, dadaists focused on publishing of their own magazine and developing an art gallery holding the program including dance shows, lectures, exhibitions. Surrealists can't be neglected as well – their activity fundamentals were to express "a real creativity of thought". "The performance is cancelled" was the first famous theatrical work created by surrealists. The movie "Interval" with farce elements was shot using the similar style. In the mid-fifties in the USA, J. Cage and M. Cunningham inspired by dadaists and surrealists creativity, staged performances based on what now is referred to as the set of immersion and total theater. On the basis of these performances, the so-called "live" art has developed. A new form of art called "happening" has also developed – here the artist initiates the process, but not entirely controls it. "18 happenings in six parts" by A. Kaprou can be considered as a striking example of a new art form¹⁰². With the development of cinema, and later television and video being implemented synthesis elements in staging, performatory art besides using movies immediately has become more sinematic in terms of the concept, in particular in the second half of the last century. As a result of new media use, fundamental categories of theater, dance and performance – body, space and time began to change. The existing discourse concerning a "virtual body" concept shows that the overall idea of a "body fetishization", recently peculiar to the social and performatory theory, is intensified when regarding virtual. Many works in the field of digital performances show partially disjointed, partially organic relationships between performer's physical and virtual "self", and the virtual counterpart is divided into reflections, alter ego, spirit, and manipulable dummy.

Thus, virtual reality and liquid architecture rise relationship of physical and virtual space to a new level. The Internet enabling connection of performers from all over the world, webcams CCTV (the surveillance camera system) change the concept of "space", while the combination of live broadcasts and videos gives a new sense to existence in time and beyond it. Besides, digital technologies are involved in dancing as well: ranged from such programs as Life Forms and Character Studio to movement detection systems, such as Isadora and EyeCon

¹⁰² R. Goldberg, *Performance art: From futurism to the present*, New York, Abrams, 1988.

which activate sound and multimedia effects in real time. By means of computer system use, for example, choreographers M. Kaninnham and B.T. Jones cooperating with media artists P. Kaiser and Sh. Eshkar transformed the body form and esthetics in dance.

The similar practice was integrated into the classical theater as well. Thus, immersion of a spectator in a specific performatory environment having uncommon to a real life space-time characteristics has become a major artistic technique in musical and theatrical works of the 1970-2000th¹⁰³. Today, in the context of a wide choice of digital technologies used for immersive effect increase, creators of theatrical and musical performances, composers, choreographers, artists and others seek to affect spectator consciousness, to change it and at the same time to involve the spectator into active participation in the creative process. In turn, the audience as well as performers has an opportunity to experience both physically and psychologically various time and space features, to feel, realize and mentally reconstruct the meanings and values meant by the author.

Cultural products that are broadcast within the "National Theatre Live" project (Great Britain), The Opera Platform (founded within the culture support program in the European Union's Creative Europe projects), "Theatrical web", "Theatrical Russia" (Russia) and others are striking examples of a project cyberperformance (live digital performance). The given examples imply different understanding of the same phenomenon, but through the lens of the corresponding theory. A more complex example, due to its core digitalization integration includes the Theatre named after Digital Revolution, La Gaite lyrique – the Center of Digital Art Forms designed by Manuel Gotran. Opened again in the same-name theater building – Théâtre de la Gaité lyrique (France), in 2011 the Center became the place for experiments with new technologies in all digital culture areas – music, graphics, video games, cinema and theater, fashion, design and certainly architecture. Here, digital art, theatre art in particular, is formulated as an element of integrated digital culture but can be also perceived as a projection to traditional arts. Therefore, the choice of research focus and object, and consequently the choice of an appropriate descriptive and explanatory form, remains with the author.

¹⁰³ E. V. Kiseeva, "Musical and choreographic performance as an acute form of musical theater", in *Southern Russian Musical Almanac*, vol. 4, 2017, p. 90-95.

Characteristic of the second argument, which is associated with the role of the genesis of digital art in the context of the concept of technical and artistic hybridization

The second argument involves a role of digital art genesis in the context of technical and art hybridization concept created by D.V. Galkin – detailed interaction between artistic activities and technologies. The researcher suggested more comprehensive and generalized technologized art system, worked on digital culture issues, and raised an issue of digital culture transformation into artificial life culture¹⁰⁴. The approach, the basis of which involves consideration of historical interaction between technical innovations and theatrical activities, is supposed to be productive clarifying sociocultural trends that created a digital theater phenomenon and maintaining its development. Thus, technological art emergence of which belongs to the end of the 19th century and is related to the advent of film and photographic equipment was the first stage of digital art formation. "Technological art" term was firstly used by F. Popper¹⁰⁵ to define a trend of technology infusion into art activity¹⁰⁶. Direct dependence on technological tools, such as a motion picture camera and a photographic camera, art object creation and perception are peculiarities of photo and moviemaking. W. Benjamin¹⁰⁷ was one of the first to pay attention to this phenomenon. He mentioned certain camera significance that is used between actor's action and a spectator. He draws two conclusions based on this observation¹⁰⁸: 1) image perception opportunities of apparatus strongly differ from spectators' perception who watch acting directly due to the fact that technologies can't capture the scene entirely being focused only on some of them; 2) there is no feedback between actor's action and a spectator that was earlier inherent to performance, allowing the actor to adjust the

¹⁰⁴ D. V. Galkin, "Digital Culture: methodological issues of cultural dynamics research from digital automatic machines to techno bio creatures", in *Cultural Research International Journal*, vol. 3, no. 8, 2012, p. 11-16; D. V. Galkin, *From cybernetic automatic machines to artificial life: theoretical, historical and cultural aspects of digital culture formation*, Tomsk, Tomsk State University, 2013.

¹⁰⁵ F. Popper, *From technological to virtual art*, Cambridge, MIT Press, 2007.

¹⁰⁶ D. V. Galkin, "From machine admiration to artificial life: technological art development stages", in *Messenger of the Tomsk State University. Cultural Science and Art Criticism*, vol. 1, no. 9, 2013, p. 44-51.

¹⁰⁷ W. Benjamin, *The Work of Art in the Age of Its Technical Reproducibility*, London, The Belknap press of Harvard University Press, 2008.

¹⁰⁸ D. V. Galkin, "Technical and art hybrids or the work of art in the era of its computer production", in *Humanitarian Informatics*, vol. 3, 2007, p. 40-53.

performance based on spectators' reaction. This correlates with a cyberperformance concept.

At the beginning of the 20th century, a combination of traditional theatrical technologies and the latest technical advances based on vanguard performance search developed. In her thesis research "New Technologies in Contemporary Performance", T.V. Astafyeva¹⁰⁹ points that creation of a new performance staging principle was determined by the time. T.V. Astafyeva¹¹⁰ gives examples of technical advances which triggered this process: dynamic projection, light and color plot. In addition, with the introduction of projective technology and moviemaking into the theater, new opportunities of visual impact on the spectator created. It is worthy of note that creative searches of film image integration into the theater has been carried out for more than a century. However, if at the boundary of the 20th century film image application performed mainly the task similar to early cinema problems – to achieve wow-effect, then in the course of art development towards intellectual researches and attempts to deeply immerse into the essence of ontologic discourses used in performances and staging, cinema and video projection raised to a new level from the perspective of multimedia direction.

W. McCay's creativity, who was believed to be a "father of animation" and who became widely known for his newspaper comics "Little Nemo in Slumberland", had a great influence on many generations of illustrators and animators, including U. Disney. In 1914, McCay went on tour with the multimedia performance "Gertie the Dinosaur". He decided to bring a dinosaur back to life, proved that his pictures can move. Ten thousand pictures were created by him on paper; W. McCay created a personality out of Gertie and gave it emotions. Within the vaudeville, the animator, swinging his whip, was on the stage to the right of the screen, then there was a dinosaur on the screen who like a living creature made various actions and executed W. McCay's commands. As a result of interactive stage communication between the animated dinosaur and the author, W. McCay joined his heroic character, presenting himself on the screen in the close. In fact, this performance was a theatrical multimedia performance that majorly outpaced digital technologies used in contemporary theaters. S. Johnson

¹⁰⁹ T. V. Astafyeva, *New technologies in contemporary staging: as exemplified in theater art of St. Petersburg, 1990-2010*, St. Petersburg, St. Petersburg University of the Humanities and Social Sciences, 2011.

¹¹⁰ *Ibidem*.

described it: "McCay's step into the screen and transformation into its virtual alternative became one of the most used techniques in contemporary digital theater"¹¹¹.

In K. Capek's play *R.U.R.*, F. Kaisler was the first to use moving projections. Motion-picture screen, remote control, live moving camera, and waterfall image projection were used in this performance creating an amazing half-transparent effect. It was the first time in the history of theater when media projection and real running water were combined. Later, a famous German theorist of theater and a director, E. Piskator began experimenting with media effects. His systematic approach, narrative and statement style are still appreciated in theatrical business today. As early as in the 20th of the last century, E. Piskator used modern techniques, such as moving text of messages projected on a front curtain or visually fascinating video with the image of the starry sky on the big screen. He also combined documentary or specially shot scenes and whole pictures with stage dramaturgy. Such synthesizing experience has modernized the drama structure, creating a conceptual conflict and esthetic unity of various artistic-expressive means simultaneously¹¹². With the help of the designer V. Gropius, E. Piskator attempted to construct a special theater to embody his ideas – a total theater. Its basic principles include the ultimate contact among the spectator, actors and the director. Today the given concept is called "site-specific theatre" where action not just goes beyond the stage limits but beyond the borders of the theatre building. Performances take place in forests, on the street, in depots, plants and garages.

In other words, the director creates the uncommon for theater environment, having its own informational space, a special communication type with a spectator is established and becomes an integral part of the action. The same thing was relevant for the American art of the 60th, however, in a dancing performance area in particular; such approach was applied by J. Cage, R. Schechner, Living theater, T. Brown, M. Monk. The Iranian performance "Orgast" by P. Brook, 1971, which was "located" among the ruins of Persepolis and lasted more than eight hours became one of the first theatrical site-specific works. Today, a site-specific director can place the spectator into the sewer ("Julius Caesar" by R. Castellucci), but can firstly place him in the drained pool,

¹¹¹ S. Dixon, *Digital Performance: A History of New Media in Theater, Dance, Performance Art, and Installation*, Cambridge, MIT Press, 2007.

¹¹² E. G. Rostovsky, "Multimedia theater space. Humanitarian", in *Social, Economic and Social Sciences*, vol. 3, 2014, p. 203-205.

and then walk him along the streets in St. Petersburg ("Daniil Kharms. Route No. 2" by S. Pekteeva). Exactly when site-specific offers movement, it automatically becomes a promenade theater as well. The performance "The Tibetan Book of the Dead" by B. Berezin is staged today in the deserted depot at the Kursk station. The art of the 20th century was under the influence of the theory of relativity and the general trend of deconstruction and instability of the reality, anti-matter ("dark matter"), antiworld as a part of the multidimensional reality. Here virtuality experiments begin. Meaning disappears in the virtual world, instead its phantom object is created which not reflects reality, but replaces it with its hyper real counterpart. Thus, "Remote Moscow" creators use Moscow streets as scenery, and passersby – as actors of a new performance type – "promenade"

Theater promenade is an action with spectators' movement in space. It is traditionally regulated and predetermined: spectators are instructed how and when to move from one location to another, or they are just guided personally. R. Wilson became one of the promenade pioneers in 1972: his performance "Mountain KA" represented a total open-air series lasting seven days without any interruption, 24 hours a day. To maximize wow-effect and avoid loss of attention and interest, R. Wilson distributed episodes among different platforms – spectators had to follow the actors. The first promenade experience in Russia was "Leopold Blum's Day. Time Root Extraction" performance at the School of the Dramatic Art in 2004. It was staged on 12 platforms – in the cloakroom, the buffet, the cash desk, the rehearsal hall – and lasted a day. Being an original genre, promenade performance has been recently created. Promenade theater movement coupled with digital technologies was in many respects defined by Rimini Protokoll; their work "Remote X" is a walk around the city from the cemetery to the roof being guided by earphone- sounded binaural record where the voice not only dictates the direction and suggests various actions, but interprets participants' view on reality. Here it should be pointed out that modern theorists of theater started paying attention to the issue of informational space development in unauthorized places, for example, in dangerous structures, closed metro stations, cemeteries and so forth.

One of the examples of literally limited spaces is the performance organized in Somerset House and King's College London buildings. "Acting" in the performance, during the event spectators struck against the sign with an inscription: "No admittance". Despite of the fact that the unauthorized territory was not included into staging area,

nevertheless spectators made active attempts to leave the borders of the game field¹¹³. Another example is a quest-based performance "Adventure 1" (London, Coney association, 2016) staged on financial districts of London where spectators are guided by directors instructing further actions via earphones. Despite the relative action control, spectators still have a chance to be influenced by external factors, therefore, there are risks to life and health for those involved into theatrical activities. The project is experimental and is organized depending on donations made by London's patrons¹¹⁴.

At its present stage, "classical" is referred to within a traditional space, theatrical activity is more diversified due to digital synthesizing development. Thus, 3D graphics projected on the empty stage can be pointed. Videomapping technology easily enables creating virtual space on the stage. The same technique is relevant for many Russian and foreign theatrical figures today. The Lithuanian artists G. Gabrans, I. Sipunova, I. Gaylans used three-dimensional installation with a large number of modular elements in "August: Osage County " performance by T. Letts in the Moscow theater named after V. Mayakovsky. A spectator plunges into ten various virtual spaces at the performance "A Night at the Library" by R. Lepage. VR technologies are also becoming more popular. VR was firstly used on a theatrical stage in 1995 when The Institute for the Exploration of Virtual Realities of the University of Kansas staged the play by E. Rice "Calculating machine". In 1998 they released "Tesla Electric" performance with virtual scenery, and in 2001 – "Dinosaur" with virtual characters, etc. The director M. Didenko, one of the main theatrical experimenters in Russia over the last years – in 2017 he presented a new project – VR performance "Parrot cage". The performance was shown in a special cube at the City Square. Contemporary dance and progressive technologies were combined by the choreographer Zh. Zhoben in the performance "VR_I" that was staged in Voronezh (Russia) within the Platonovsky festival in the summer of 2019. And if earlier virtual reality was rather an "attraction", Zh. Zhoben filled it with art content, having opened new opportunities not only for choreography, but also for other art fields.

¹¹³ A. Alston, "Making Mistakes in Immersive Theatre: Spectatorship and Errant Immersion", in *Journal of Contemporary Drama in English*, vol. 4, no. 1, 2016, p. 61-73.

¹¹⁴ A Tail of Two Cities: Adventure, 2016. Available at: <https://www.kickstarter.com/projects/coneyhq/a-tail-of-two-cities-adventure-1/updates>.

The performance world was held in 2017. Since then, about 13 thousand spectators have immersed into virtual reality. This technique uniqueness is that performance takes place on the 5.5 x 8m "carpet". To stage it in Voronezh, a dance hall at the Chamber theater was chosen. Five spectators at a time plunge into virtual reality. Travel duration is 20 minutes. Having found themselves in the hall, spectators see the empty platform and equipment spread out on it. Before immersion into the new world they are instructed. They are equipped on the platform: VR glasses, earphones, sensors for motion capture. There is a shoulder-strap computer behind everyone's back¹¹⁵.

Features of the third argument

The third argument – it involves a reference of interaction with digital informational space to digital art that is regulated by the currently dominating art paradigm. The range of similar trends includes immersive theater experience. The immersive effect is applied in many spheres of art; visualization of consciousness enables mental action intensification and defines a possibility of perception enhancement. As B.B. Velichkovsky and his coauthors state, the sense of involvement is an important aspect of feelings experienced by a human interacting with a visual environment¹¹⁶. The sense of involvement is shown through perception of being transferred into virtual reality and through a real interaction with virtual reality objects. The sense of involvement can be defined as perception of immediate interaction with virtual reality without realizing the fact that this environment is artificially simulated by presentation technology¹¹⁷. In general, the basic difference between an immersive and traditional theater is that spectators are no longer observers but full participants of the action – they can interact with actors and scenery. At the same time, digital informational space is created by means of synthesized classical theater, choreography, audiovisual effects, virtual reality, projections and installations, instead of

¹¹⁵ Y. Gorshkova, *Dances in virtual reality. VR_I was brought to the Platonovskiy festival*, 2019. Available at: http://www.vrn.aif.ru/culture/theater/tanec_v_virtualnoy_realnosti_na_platonovskiy_festival_privvezli_vr_i.

¹¹⁶ B. B. Velichkovsky, A. N. Gusev, V. F. Vinogradova, O. A. Arbekova, "Cognitive control and involvement into virtual environment", in *Experimental Psychology (Russia)*, vol. 9, no. 1, 2016, p. 5-20.

¹¹⁷ G. Giannachi, *Virtual Theatres. An Introduction*, London, Routledge, 2006.

VR glasses there is a mask hiding a face and providing freedom of movement and actions.

According to a number of theater theorists, four following factors make spectators feel more integrated into theatrical performances: "real space", sensation, movement and time. For example, E. Sakellaridou notes that a "real space" is a structural component of immersive theater, and the real space is a part of a staging play¹¹⁸. If a performance is staged in the castle, spectators visit a real castle where by means of various techniques and tools theatrical activity creators force people "watch" it the way that spectators would feel immersed into a theatrical performance as a synthesized cultural product. "Secondary" feelings involvement is noteworthy. For example, blindfolding spectators can intensify sensation of hearing. Movements can influence the way the audience perceives a plot – the movement, put it tentatively, around the theatrical space, promotes directors' kinaesthetic sensation.

Punchdrunk, the British theatrical group famous for being an "immerser" of a spectator in the atmosphere of mysterious pictures by legendary film directors S. Kubrick, A. Hitchcock and D. Lynch, is considered to be the founder an immersive theater genre. One of the most known performances of this genre is the well-known "Sleep No More" (Punchdrunk project, USA) performance. The show is based on "Macbeth" by W. Shakespeare. The performance is staged in the deserted five-floor hotel McKittrick which area is more than 9 thousand square meters. All visitors receive a white Venetian mask upon their arrival which they are obliged to wear during the entire performance. The audience is left to themselves in a labyrinth with 90 rooms where performance and installation are combined with site-specific choreography in the environment of a psychiatric department, cemetery and hotel built in 1930th which atmosphere is complemented with virtual reality tools¹¹⁹. Here a spectator is free to follow one of the characters, to stay in place or to chaotically move along the huge labyrinth, in other words – to choose any behavioral strategy and be responsible for "self-performance". This creative product created genre stylistic fundamentals: freedom of movement instead of statics, involvement instead of detached observation, interactive, action simultaneousness, a mask as guarantee of identity refusal, freedom of

¹¹⁸ E. Sakellaridou, "Oh My God, Audience Participation! Some Twenty-First-Century Reflections", in *Comparative Drama*, vol. 48, 2014, p. 13-38.

¹¹⁹ J. Bucher, *Storytelling for Virtual Reality: Methods and Principles for Crafting Immersive Narratives*, New York, Routledge, 2018.

action and perception. The performance "Come back", creators of which were an American group Journey Lab, is considered to be the closest performance to immersive theater classics. Performance is set in Moscow, in a three-storyed mansion Dashkov Lane. The play "Ghosts" by G. Ibsen is the base for a mystical show plot. It is difficult to imagine a contemporary immersive theater without performances staged by the creative Third Rail Projects production group team known for its experimental performances in unusual locations combining the elements of theater, dance, sound and art installations, and unusual choreography. The most successful performance of this group is "Then She Fell" – staged based on "Alice in Wonderland" by L. Carroll. The performance is set in the deserted hospital in Williamsburg in New York. Unlike "Sleep No More" where about 300 depersonalized spectators are left for themselves, "Then She Fell" is a chamber individualized adventure. Only 15 spectators are involved, throughout the performance they are divided into little groups of two-three people whose routes are carefully considered and verified by directors. Interaction with a spectator is substantially elaborated, or more likely concretized: spectators can talk with actors personally carrying out their instructions, like painting a rose, playing chess, writing down characters' speech or mixing alcoholic drink which they can drink subsequently. The spectators' adventure is an actual representation of an adventure of Alice in the wonderland with full immersion. The Belgian troupe Ontroerend Goed is a creator of the globally-known one-spectator performance "Your Game" that was brought to Moscow by the Russian director F. Elutin. In their first performance "The Smile Off Your Face" (2007), spectators were put in the wheelchair one by one, with their eyes tied with a scarf, immersed in the world of the strengthened sensations, digital sound effects in particular. In the performance of "Fight Night" (2013), the spectators were given tablets with voting buttons the results of which define further course of action. The Russian projects include immersive performances "Black Russian" directed by M. Didenko, performance promenade "Normansk" in the Cultural center named after VS. Meyerhold, performance quest "Moscow 2048", one-spectator interactive experience "Your Game" by F. Elyutin, immersive sightseeing tour "Remote Moscow", immersive performance "Relatives" directed by M. Zanetti¹²⁰.

It is important to note that the use of digital technologies in the system of immersive performance creation promotes not only a wow-

¹²⁰ D. Gindt, *Bastard or Playmate? Adapting Theatre, Mutating Media and the Contemporary Performing Arts*, Amsterdam, Amsterdam University Press, 2012.

effect, but immersion specification as well. This statement is especially relevant for theatrical figures who by means of modern technologies renovate previously staged performances which were created to be immersive¹²¹. As an example, the Chinese play created in the 16th century "The Peony Pavilion" Xianzu can be cited. The project "Internal awareness: Du Linage Dream" reveals transcendental audience concepts, i.e. the idea of a performance beyond sensual experience and knowledge, creating and using a digital informational space created by means of digital technology such as motion tracking technologies and computer visual effects, are used to immerse the audience and so forth¹²². The purpose of such technology use is to immerse the audience in the tactile sequence of the play, at the same time using real actors coupled with motion tracking technology and mapping to create holographic effect accompanying the actors. To illustrate this technique, the Russian researcher N.B. Mankovskaya shall be cited: "The unsteadiness of psychophysical personality characteristics emphasizes the idea of its ambivalent fluidity, infinite diversity; embodiment of dreaming, hallucinatory subconscious fantazms creates a closed cycle providing free mutual transitions between real and unreal. This reminds narcotic hallucinations"¹²³. In general, the created digital informational space (photos of a real garden creating a basis for the laid computer effects are used) give the audience an opportunity "to add" subjective personal experience and memory to the picture represented by the director, creating unique experience for each member of the audience. Thus, the digital immersive Chinese garden is a way to tell the story, using the concept of space which is designed to immerse a spectator in the illusory nature of the play. Besides, actions for each spectator are carefully planned. The public can independently elaborate movements for the digital bodies which even deeper immerse the audience into theatrical activity – they become a part of the play¹²⁴. One more example is the well-known musical "Jeff Wayne" by J. Wayne based on the novel by G. Wells "The War of the Worlds" in new version where virtual

¹²¹ G. White, "On Immersive Theatre", in *Theatre Research International*, vol. 37, no. 3, 2014, p. 221-235.

¹²² R. J. Watson, "Reducing Youth Risk Behaviors Through Interactive Theater Intervention", in *Journal of Human Sciences and Extension*, vol. 4, 2016, p. 70-77.

¹²³ N. B. Mankovskaya, *Postmodernism esthetics*, Saint Petersburg, Aleteya, 2000.

¹²⁴ Q. Feng, "Interactive Dramaturgy for Chinese Kunqu Opera: The Peony Pavilion", in *Bartlett School of Architecture*, 2017. Available at: <http://www.interactivearchitecture.org/interactive-dramaturgy-for-chinese-kunqu-opera-the-peony-pavilion.html>

reality and additional reality, and holograms, and living actors were combined. Performance is divided into seven parts distinguished by different "platforms" – scenes where characters of the novel act. The premiere of the updated musical version was held in May, 2019 in London. The above mentioned argument suggests that post-theatrical paradigm is a relevant paradigm, with peculiarly blurred borders between theatrical and extra theatrical, the same blur in digital theater distinctness from another cultural digital product is a logical consequence.

Theatrical performances has moved heaven and earth since the early times, these are Francois Rabelais's carnivals intended for status transgression and hierarchy destruction: "The theater can be anywhere, anything, this is all a theater. The borders are only in our heads. Actually, they are no borders at all, we live in the world. This is all a theater, no matter: immersive, performative, classical or children's, it lives and will live". However, on the other hand, quoting E.G. Rostovsky, a Russian researcher who is engaged in studying the influence of digital technologies on theatrical activity based on the sociocultural approach, it is worthy to say that the merge of digital technologies and artistic scenic images creates new forms of interactive communication. Virtualization and dematerialization change traditional art processes, creating new esthetics. Whether "the expected complete transformation of a theater as a result of computer expansion into the field of performatory interactive show-performances foretells a global network cyberspace and whether it implies death to classical forms of theater – the near future will show"¹²⁵.

1. The carried out research enables defining a digital theater as a practice of interaction between creators of performance with digital informational space, the result of which is a digital fragment used in the artwork marked by a certain paradigm of art as a cultural digital product. In other words, digital theater art is creative practices using digital informational space as a material.

2. To refer one creative activity or another to digital theater performance, it is important to fulfill two key stipulations: the given practice has to deal with digital informational space and end work of art, i.e. a performance, shall be recognized as a cultural product within one of art paradigms.

3. There was a hypothesis made saying that a digital theater institution, being a digital arts component and a digital culture element within theatrical science, shall become theoretically and methodologically

¹²⁵ E. G. Rostovsky, "Multimedia theater space. Humanitarian", in *Social, Economic and Social Sciences*, vol. 3, 2014, p. 203-205.

centralized autonomous scientific concept. To justify this hypothesis, three arguments were stated: the first argument – immediate reference of theatrical activity to digital art is carried out based on the degree of digital informational space involvement, which is created depending on the extent "digit" penetration, to be exact depending on the extent of digital technology implementation in the mechanism cultural product creation; the second argument – a role of digital art genesis in the context of detailed interaction between art activity and technologies that implies variability of forms, methods and tools for creation of a performance as an end product in its "classical" form by means of digital technology, forming a digital product, but maintaining a synthesis factor; the third argument – it involves a reference of interaction between a creator or representative of performance innovative formats with digital informational space to digital art that is caused by a currently dominating art paradigm.

4. In the context of art technologization issue within theatrical science development, the role and extent of digital technology use fade into the background because of the social and philosophical nature of a digital phenomenon in a theatrical sphere allowing reduction of a theatrical component switching the focus to socially important characteristics. To motivate science to keep up with the trends in the field of digital technologies, scientific research in the field of social and humanistic approach concerning the phenomenon of cultural digitalization, art in general and theatrical activity is required in particular.