The Research of Computer Simulation of Textual Dimension in the Context of the Musical Discourse

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Abstract: The relevance of the study is determined by the need to rethink musical art as a value orientation in the period of postmodernity. The purpose of the study is to determine the features of the textual dimension of musical discourse as a feature of the postmodern value perception of musical art in combination with the information and computerization of society. The purpose of the article is to show the basic context of the textual dimension of musical discourse. This research shows a holistic analysis of musical art in the context of discourse analysis and innovative modeling, which in the future is a prospect for creating new ideas for the interpretation of musical works. The study highlights the main components of textual analysis of a musical work, as well as the perception of musical discourse as a manifestation of today's information of social development. For a comprehensive analysis of musical art it is necessary to understand the basic theoretical and methodological approaches to the study of this concept. Therefore, the principal theoretical approaches of scientists concerning musical discourse in the context of the textual dimension were studied, and theoretical problems in musical discourse analysis were developed. Beneficial to study the complex modeling of the textual dimension of musical art, the methods of analysis and synthesis, research method and discourse analysis method were used. This study provided a basis for determining the effectiveness of computer simulation technology in the context of the musical dimension.

Keywords: Semiotics, signs-images, graphic symbols, innovation, information.

Introduction

Musical art expresses the spiritual world of human through complex speech constructions that illustrate the process of creating a musical composition and reproducing it for the listener's perception, as well as by sound coloring the contextual content of the musical work. Musical composition is created by an artist under the influence of the cultural direction of the relevant historical epoch, which is characterized by relevant socio-cultural features, as well as taking into account the individual perception of an artist of the surrounding reality.

The relevance of the research consists in identifying the features of speech, which is thought as a context of musical discourse and analyzed from the position of semiotics. This approach is relevant, as it expands the concept of musical text in the socio-cultural artistic perception of the present postmodern world, a feature of which is the denial of the values and rules of the past life and the search for new trends. Researchers define the semantic features of the postmodern as the prospects for further search for value orientations of the information society and the development of computer technology (Beck, 1993; Best & Kellner, 1991).

Musical art reflects the thought processes of the creator with the help of artistic means, speech, which are the actualization of deep intonation structures with the reflection of psychosemantics of cultural epochs and individual perception of them by the artist. It is an illustration of musical and linguistic perception of a particular historical and cultural era by an individual artist, in the context of which socio-cultural values are interpreted in a symbolic and iconic structure. Researcher Burbules N. S. (2009) believes that postmodernism changes the human view of the world, the person is in a constant search for new ways, new solutions, each personality is formed in the process of socialization in a period of innovative technology, which is a reason to consider perfect only new approaches to self-realization. Hyttten K. (1994) explored pragmatism as a manifestation of postmodernism, embodied the search for truth and perfect effective behavior to achieve goals in life. Accordingly, the personal musical speech of the composer with his individual perception is combined with the stylistic features of certain historical and cultural eras.

Since the musical speech of the work represents both the composer's personal perception of the world and the heritage of historical and cultural eras, the study is relevant in the context of the analysis of the postmodern cultural era, manifested in the global values of society. Pinedo I. has identified the contextual meaning lines of postmodern cultural development and studied their features in the context of art development. The study
highlights aspects of the transformation of the general into the personal, where additional and main content lines are combined. Hassan, I. (1987), Johnson, E. (1994), Gouzouasis, P., Bakan, D. (2011) identified the future perspective for music art as a phenomenon of postmodern world view. Haack, P.A. (2005) explored the functions of music as the foundation of musical art, his findings provide a basis for defining the characteristics of music perception. Eisner, E. (2008) argues that the postmodern forms special concepts of creating musical compositions, which are created using current innovative technologies. Important in the process of researching the textual dimension of musical discourse in the postmodern perception of the world is to determine the characteristics of the educational process. Kritsonis, W. A., Jacobs, K. D. (2006) formed the learning trends that most effectively form an idea of the features of value formation to the musical art.

Consequently, the relevance of the study is determined by the complex processes of transformation of global values, which are formed in the context of the development of historical and cultural epochs of global scale in the personal perception and interpretation in the context of the textual dimension of the musical discourse of the postmodern era.

The article highlights the main components of the textual analysis of a musical work, as well as the perception of musical discourse as a manifestation of informational public development. For a comprehensive study of musical art it is necessary to be aware of the main theoretical and methodological approaches to the study of this concept.

Therefore, a composer reproduces the socio-cultural values of some era and individual style in the created composition by him/her (Beregova, 2017). And this work is the result of understanding and transforming the audio perception of art in a personal-individual style, which is reflected in the context of the textual dimension, combining cognitive and discursive levels in the context of innovative computer simulation and genre-stylistic reproduction.

Consequently, the study is relevant to determine the value of musical composition and understanding its meaning as an aesthetic worldview of the historical epoch, as well as ideological, semantic and cultural and value reproduction of beauty of the world through music, Vasylenko L. M. (2003). Musical composition is a reflection of the musical-speech activity of a composer, which is perceived as a kind of discourse and a dimension of textual space.

Abovementioned approach of the musical compositions creation is interesting as the formation of values and the study of the functional representation of the artistic dimension of the surrounding reality or
imaginary interpretation of the world, in particular in the aspect of computer simulation. Musical speech is considered as a process of meaning formation, in the context of symbolization of musical signs.

Therefore, the study of musical art is important, because a person's musical preferences demonstrates its values of the world and its level social development, and reflects the spiritual culture of a human individually and humanity as a whole.

The aim of this article is to analyze and investigate the textual dimension of musical discourse in the context of computer simulation.

**Theoretical and methodological approaches in studying of the textual dimension of modern musical discourse**

A term of discourse analyzes the contextual environment of individual sentences, and then texts, highlights the linguistic features of the formation of texts to determine their patterns of construction and functioning. Musical discourse balances between person's imaginations of art and the context of musical art itself. Human's sound perception of the environment is one of the most important, because sound is not only a necessary element of reflection of reality, but also the most influential function of psychological perception.

Thus, it is believed that eyesight is the most sensitive sense organ for a person, because it best remembers what it sees (Bern, 1992). But, in fact, sound quickly absorbs information that affects on mental awareness of the basic processes of evolution of the world. Sound has a directive effect on a human brain and, consequently, on the psyche.

Since ancient times human in primitive society observed the sound of various natural phenomena, felt a certain rhythm. In order to satisfy their needs for aesthetic pleasure, an ancient human sought the technology of sound or reflection of the sounds he heard. A primitive person understood that sound affects the perception and cognition of the world around him, so, like the sound reproduced by instruments, a person develops an idea of sound influence on natural or other phenomena. Primitive people performed magical rites with the help of movements accompanied by music, i.e. they imagined that their movements and sound rhythms could change natural phenomena or certain events.

Consequently, sound is perceived as a call to action, respectively, a piece of music affects a person psychologically, encourages certain emotions. Different melodies and rhythms evoke different emotions, which are the basis for studying fabric of a piece of music.
The automation of musical art creating has interested many researchers, but despite the existence of a broad theoretical basis developed by foreign scholars, only to adapt to musical realities of one of the established socially oriented theories of discourse analysis of piece of music and textual dimension is virtually unrealistic (Imel, 2006). The current situation is also complicated by the significant predominance of discourse in the context of the formation of socio-cultural values, including musical discourse, which is covered in the works of Bonfeld M. (2007), critical discourse analysis by Makarov M. (2003) or socio-cognitive school of discourse analysis by Bakhtin M. (1995).

National researchers in previous investigations have studied the issue of discourse analytics in music, but this issue has been studied only in the context of contemporary music (Shevchenko, 2008; Syuta, 2008) and others.

The theory of musical discourse has been improved, and in some musicological trends has become a component of global studies of musicology, Vasylieko L. M. (2003). Information on the principles of musical art creation needs more detailed study, in particular the textual dimension, on the principles of the semantic context of musical composition, which is reflected in the sign-symbolic aspect (O’Regan, 2001).

Our scientific view on the problem is the development of analytical observations and conclusions, fragmented in the texts.

The analysis of present-day musical works also forms the idea that the textual meaning-making context is a reflection of the idea of musical work and provides necessary perception of its meaning, and sound reinforces the emotional sound, which is a sign of perception compositions and generates the appropriate evaluation among people.

The analysis of musical discourse fullest is highlighted in the context of a particular text representation of conceived communication goals. Text dimension analyze musical works not only as a linguistic ties that connect words, sentences, but meta-linguistic semantic components that form a logically-structured coordination sentences for displaying of the musical composition ideas, Meyer (2001). The author argues that the textual dimension of a musical work is a representation of the sonic context of the musical composition (Meyer, 2001).

If we compare the musical text dimension with usual text creation process, there is a difference, because the music broadcast is logical conclusion of ideas within a period of musical form, expressed in the context of rhythmic speech and an exhibition of music discourse.

In theoretical musicology concerning musical discourse a rhetorical position of disposition is formed that contains some provisions, namely, the
time-sequential deployment of musical thought as a proposal and conclusion that there are also valuable for analyzing textual dimension of musical discourse of modernity. Ways of analysis of contemporary music are based on research of structural - composite components as sense making parts of musical work of art.

Text dimension of musical discourse provides analysis of musical sign as a major component of a work. Musical sign reflects holistic education semantic nature and is the bearer of values musical text and accordingly, a work as a whole. Sign-image is a discursive reflection of past and present in art, and also contains a certain amount of information (Smith, 1997). The sign plan of reflection is presented by concrete sign-forms expression, but the content plan is the manifestation of a particular semantic approach to the manifestations of socio-cultural specific ideas for displaying text dimension of music.

Consequently, methodological and theoretical approaches to the analysis of musical discourse in text dimension illustrate the importance of sound reproduction of text that unites the interpretation of musical thought in a text meaning and sign image formation.

The research of computer simulation of textual dimension in the context of the musical discourse

Music art is important to study because it forms imaginations on human values. Musical art has a significant impact on people as aesthetic affect that person feels in reality, but understands it in his fantastic terms (Samoylenko, 2003). Music builds a harmonious development of personality and values of art, which is a representation of a text dimension as a meaningful creation, audio frame as a component of emotional impact onto human, and musical discourse as the main aspect of the perception of musical composition - the ultimate symbolic and semantic context of a musical work reflecting cultural, stylistic and individual features of a composer worldview.

Innovative technologies have covered the development of various spheres of human activity; their use is a prerequisite for the effective development of today’s society (Gygli, 2019). Therefore, we think the musical discourse in today’s information society provides applications of information communication technology in creating musical compositions. Thus, expression of innovation of present-day social development is the use of computer simulation.

Computer simulation of music is important to analyze the musical discourse and textual dimension of modernity, as the technology used for
processing modern music, arranging and carrying its sound in virtual reality (Gardner, 1983). The present day world is in the process of information of all spheres of human activity. Therefore, the urgent need of society is to introduce information communication technology in different spheres of human activity, and especially such a need is in the interpretation of music.

One of the manifestations of the use of information communication technologies is the introduction of audio playback tracks. By other words, computer processing is used to represent a musical composition. This approach is quite common and convenient, and user requires basic skills in computer technology, Johnson (2018). And respectively musical work can be heard at any time via a personal computer.

Furthermore, computer simulation is more valuable in creating a musical composition or arrangement of musical composition. For this purpose, computer programs are widely used that simulate musical sound and textual features (Imel, 1998). Such programs compose meaningful structural components of musical works, including tempo, rhythm, volume, melody and text symbols-images by creating musical patterns. Thus, a simulation of a musical work is made, and interpreted in computer processing.

For arrangements of musical work music applications processing are used, representing already existing tracks by creating musical accompaniment computer software and modeling appropriate piece of music. Composition acquires its text and audio form measurement, but the interpretation is different from instrumental accompaniment, due to computer simulation is used.

Computer simulation is used in the context of creating a musical composition that is more complex because such work is necessary to use knowledge of music, namely its composite structural elements and semantic text design, intonation tempo, tune and musical text is measuring the value of music as well as the necessary technological skills in computer sciences (Fairclough, 2001). In particular, it is necessary to conclude a computer program or use an existing music to create compositions that require application specific knowledge and skills.

In this context, the creation of a musical work is an important aspect of the text analysis measurement that is one of the components of the model for music composition in computer processing (Giddens, 1991). Musical text conveys art information of sound-time function in which the semiotic property value represents a meaning of a musical image sense. Music text is part of linguistic, and speech levels, expressing the sound speaking in a special musical category.
The musical discourse is also a component of computer simulation highlights a polyphonic musical form of texts in mental terms. However, the musical discourse is the basis for the creation of musical texts, as a result of dialogue and monologue understanding texts of musical compositions (Beregova, 2017). The musical discourse is socially created communicative context or interpreting of musical expression and philosophical perception of authors of musical compositions present or past, which provided for the sound. On the basis of the musical discourse musical forms are created that express the author's worldview context of composition and may be the idea to create new musical texts.

Therefore, musical discourse is a process of creating musical texts based on the semiotization of a space of artistic culture, where a musical text is an expression of artistic perception in the formation of musical-speech communicative practice of a composer.

Computer simulation combines the basics of music making and information technology. This approach during a creation of compositions makes both professional skills of musicology and technological approaches to the use of computers and programming, which is the basis for creating a musical model for performance (Makarov, 2003). Computer simulation involves the development of skills in reproducing a musical composition through the use of text entering on a keyboard, which helps the development of hand motor skills.

The approach to use information computer technologies in creating a musical composition develops sensory perception in the context of developing skills and abilities to concentrate, the formation of visual and auditory memory, interpretation of thinking and creative activity in the context of art integration (Semenko, 2018). Particularly valuable in the computer simulation of musical compositions is the activity of the mechanism of montage thinking, which reflects the analytical skills and creative approach in composing a musical work.

The usage of computer simulation involves preliminary analysis of textual information and the creation of graphic models as a compositional basis of a musical work, which is an indicator of established skills and abilities of graphic improvisation, the formation of such mental qualities of an author of a musical composition, as a person with established social and cultural values. And such person has information, communication, and speech competence and is able to create associative structures for the image of artistic space in the textual dimension of musical discourse.

Computer is a teaching technology that provides the ability to vary, compose and create a generalized system of signs and symbols in the context.
of a model that can be represented in the reflection of a musical work that combines speech, style and individual, national characteristics (Vasylenko, 2003).

Consequently, computer simulation of musical compositions reflects a combination of musical discourse in the context of textual dimension and the basics of information communication competence.

In order to form the main approaches on the context of musical discourse in the interpretation of computer simulation, certain methodological principles should be identified:

1) Formation of a musical work to provide mental creations that enrich the emotional culture of an individual;
2) Combination in the textual dimension of the function of cognition and perception of a composition, which involves achieving catharsis not only in the process of listening or observing the artistic composition, but during the process of creating products of own creative activity;
3) Creating conditions for the process of understanding the relationship between internal and external, which is associated with understanding the meaning of the components of musical discourse, including internal subtext, coding and suggestive influence on subconscious.

Thus, computer simulation of a musical work involves the integration of the basics of musicology in the creation of compositions and information communication technologies (Goodin & Pettit, 1995). But the main aspect of creating an artistic musical product is the textual dimension, which illustrates the main semantic context in the reflection of signs, which is a figurative component of present music. At the same time computer simulation of information is a current form of universal culture with its stages, formation and development.

Therefore, the musical discourse of the textual dimension in the context of computer simulation reflects modern approaches to the creation of musical compositions that integrate the achievements of the information society and cultural values formed during the historical development of society.

Conclusions

We have conducted research on the peculiarities of creating a musical composition in the modern information world. To this purpose, we have investigated the main theoretical and methodological approaches to the peculiarities of the creation of musical compositions.
The aim of our study was to examine the formation of the textual dimension as an aspect of musical discourse in the context of computer simulation. Our research included a number of tasks, including the analysis of the main approaches of national and foreign scholars to music discourse, as well as the definition of conditions for computer simulation of the textual dimension in music discourse.

We analyzed the main aspects of the theme and determined the textual dimension of a musical work as the main expression of the composer's musical thought due to a sign-semantic interpretation of personal experiences of artistic reproduction.

We also studied musical discourse as a process of textual origin of a musical work, because discourse becomes the basis for creating an idea, which is realized through the formation of semantic sentences that reflect musical thought in the context of musical-compositional component of the textual dimension of creativity. We also studied the features of the sound reflection of a work, which is part of the musical discourse.

As the present-day world reflects the integration of information communication technologies, the musical composition can also be created with the help of special innovative tools. Therefore, we researched computer simulation as an effective way to create a musical composition in an innovative space.

The study raises the problem of rethinking music art in the postmodern era, which is found in the computer modeling of music as a technical means of expression, and in the context of innovation as a manifestation of postmodern education (Demchenko et al., 2021).

The musical art of the postmodern era is analyzed, combining different styles, ethnic characteristics, psychological manifestations, representing the global needs of an integrated society. This multiculturalism is a sign of the postmodern era embracing the world globally.

It is determined that one of the factors of formation of musical art of the postmodern era is the textual dimension and the use of computer technology.

We have studied the manifestations of musical discourse in the context of computer simulation, which is an expression of the current information worldview in the reflection of musical art.

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The Author 2 collected and elaborated data on theoretical and methodological aspects in the context of professional activity and presented his research in an article.

The Author 3 analyzed the theoretical foundations of scholarly writings, created a written text, and presented a categorical description of works on the relevant topic.

The Author 4 analyzed and organized the list of literature of domestic scholars who researched speech variability.

The Author 5 reviewed and organized the list of literature of foreign scholars related to the study.

The Author 6 highlighted the main factors in the formation of speech in the musical art.

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