Information Technologies in Art Monuments Educational Management and the New Cultural Environment for Art Historian

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Abstract **– Art and museum management and education develop with digital technology. The author uses a systemic approach and structural method to describe multimedia technologies in the designed artistic culture, based on various knowledge synthesis; suggests guidelines for development of new academic programs designed to develop research methods skills using information sources in the practice of art historian that can be considered as one of the main features of the twenty first century project generation in the field of museum activities.**

Keywords **– Information technologies, museum environment, educational management, training of art historian.**

1. Introduction

Modern educational management, as well as Arts Education, pays particular attention to the study with the help of media. Future artists and art historians still have not reached that level of *technical competence*, which is necessary for implementation of their own artistic potential through new technical capabilities. Any academic discipline under study refers and relies on particular sources of information, and therefore, develops principles of their scientific use.

The article deals with *information technologies penetration* into the museum environment and their use in educational process of the future art historians. Close cooperation between geographically remote artistic monuments and their study by means of interactive systems is one of the new paradigms that became possible due to the progress of new technologies. The education of artists and art historians in the field of new technologies is how they can be used in the creation of new art forms along with methods of presenting art subjects. This is another area under development in the field of museum and art history.

The ideas of spirituality and preservation of cultural memory are directly connected with museum's traditional mission described in the works [1],[2],[3]. Other studies focus on the strategy of information-project development of museum collections, which could serve to strengthening, not weakening cultural identity, study and dissemination of art works and museum environment objects [4-7]. Information technologies allow introducing to the visitor such objects that have long been stored in funds and were previously unavailable. Information technologies within the context of exhibition activities and information technologies can provide invaluable assistance in improving the methods of presentation of museum collections. However, new media technologies contribute to public education through the museums' websites [8],[9].

For this reason, the introduction of new courses related to information technologies in museum activity, dealing with information carriers in a museum, electronic museum with 'visitor – computer' interaction and 'digital art space' is important for a modern art historian [10],[11],[12]. Initially, these courses required to uncover the role of information technologies in today's global society and humanitarian culture; highlight the most important areas of information technologies in a modern museum. Moreover, they were intended to provide information on databases, multimedia

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technologies, introduce to the history of museum informatization, modern domestic and foreign achievements on example of the most prominent world's museums. In addition, they are expected to provide information on the most important information systems used in the world's museums and computer-related practical skills, such as Google's Art project, the Virtual Museum of Canada [13],[14],[15]. Methodical development of these educational programs suggests a more developed type of cognitive-aesthetic reflection than adopted in literature under study. It involves the unity of aesthetics perception and expression, understanding and creation of exhibition concept, creativity and integration with the infinite. This may contribute to expansion of art activities, which could now access the entire human culture and art works collection.

Art history classes, cultural studies and fine arts courses are designed to create the best possible educational environment for mastering the basic theoretical problems of art studies. These courses intend to build the core profile of art works that emerged during historical, social and cultural development. Moreover, they must develop research methods skills for information sources in institutional and post-graduate academic practice; determine special features of art history and culture studies and fine art objectives. In addition, those courses should teach how to organize data research independently, how to find sources of information, historiographic representational iconography; provide technics for studying graphic art, painting, sculpture decorative and applied art objects.

The importance of information fundamentals on a directory of sources, as well as introduction to the methods of their treatment, determine the strength of acquired knowledge and its application in further institutional practice and independent activities. Internet often becomes the only source of information about fine and applied arts, architecture, and design, when it comes to independent research and creative work of students living on the periphery. This is because despite a relatively high cost, it is still cheaper than high-quality art books, not to mention the speed of access and the absence of various restrictions. Currently, the Internet provides quite ample opportunities to obtaining various textual and visual information on classical and contemporary art. If the user has a good command of English, even at an intermediate level, he can access UNESCO web site, along with electronic sources of the world's largest museums and private galleries.

A contemporary museum of the twenty first century is characterized by the shift in understanding of its mission. Whereas in the nineteenth-twentieth centuries a museum was seen primarily as a temple, which collected and stored objects of cultural heritage, a contemporary museum, while retaining its traditional functions also aspires to demonstrate all the diversity of cultural values stored not only in the exhibition, but also in the funds.

This results in the problem of increasing the efficiency of the knowledge acquired in the field of art history through professional preparation of art historians with the use of information technologies. This knowledge consists of accumulated human experience in theory and history of art in a formatted form, suitable for practical use.

The *purpose* of the study is to reveal the role of information technologies in the study of art monuments and their adaptation in the educational process as a task of educational management.

The *objectives* of this study include:

- revealing specific features of the multimedia direction development in an art museum,
- identifying a complex of interrelated theoretical and methodological guidelines;
- development of an information culture of the future art historians in the context of global computerization.

The relevance of information training of the future art historian is obvious, since in today's world, there is virtually no technology of historical knowledge without the use of source analysis. Original visual sources of concern to fine arts are paramount; they do not need to prove their practical significance.

2. Materials and methods

The role of information technologies in the study of art works at the level of art history training is explored in the unity of artistic, aesthetic, methodological and technological problems. Classification and typological approaches serve as a methodological research guide revealing the form and variety of computer technologies use in museum environment [15],[16],[17].

Three groups of information technologies used in museum practice were taken as research material. First group includes museum and art databases used in various spheres of museum activities. Second group consists of electronic multimedia expositions, which artistic capabilities are significantly expanding through computer 3D modeling. Third group includes the analysis of frontmost electronic publications on CD-ROM and DVD videos, which direct visual perception and at the same time observation of author's interpretation and its analysis helps to identify communication resources of information technologies in the education of an art historian.

When examining current trends in art and museum practice, establishing their relationship with the development of digital technologies, the author uses a systematic approach and structural analysis method, which make it possible to describe the phenomenon of multimedia technologies as a new phenomenon in the designed artistic culture bases on synthesized knowledge. The ability of virtual space to intensify the viewer's emotional response, along with personal experience of an exhibition determines the humanist potential of museum's multimedia culture and creates new possibilities for artistic design.

3. Results

While studying art history, where a certain number of hours is devoted to independent study, the ability to work with information materials, including electronic resources, assumes special significance. Interaction with a work of art on a website creates an illusion of 'intimacy', which is impossible in a real museum or at an exhibition when the viewer is around other people. However, this seeming comfort of perception may lead to another vision, birth of an imitative art culture that will be destroyed only when meeting with the genuine artworks.

It is advisable *to divide educational program into two parts*. The first one should be a summary of scientific and general-culture informatics bases, its source, along with the general operating principles of the brain and computer. In the second part, it is necessary to study history and principal applications of information and communication technologies in museums (in term of museum, these are data retrieval systems based on electronic databases, multimedia, and Internet). Computer is now firmly entrenched in museum activities, though possibilities of the new technologies use to enhance the capacity of traditional museum are more important compared to their instrumental role. Moreover, it is particularly interesting to assess whether technologies may fundamentally influence the conservative museum institution, open new horizons in virtual space, try to imagine the museum's future, which, without doubt, is closely connected with the general course of cultural evolution. The mission of a twenty first century museum is to participate in creation and development of the cultural landscape, "geographically and socially defined by museum's scale and significance, in helping cultural adaptation, preservation of cultural and historical ties with the previous epochs and cultural heritage in a new virtualized cultural landscape" [18].

Museum and art databases form the basis of information material. Information technologies are currently widely used in all spheres of museum activities (accounting, scientific, exhibition, restoration, and publishing). Modern information technologies avoid multiple duplicating of information, distortion of information, complexity of amendments, ineffective search and poor usability when working with collections. Another common trend is informatization of museum resource functions, i.e. creation and representation of electronic publications in open information space, about a museum its activities and collections, along with free access to information [19],[20],[21].

Electronic expositions can help in the study of certain periods of development of domestic and foreign art. Electronic exposition is not just an interface, which provides access to electronic catalogue. It has its own scenario. This can include specifically designed texts, multimedia programs, video materials. They have a synchronization mechanism. Therefore, electronic expositions correlate to the real museum exhibitions differently and focus on attracting visitors. Exhibition area gradually transforms into a virtual environment, and start interacting in a complicated manner, involving 'a museum visitor' into this interaction. Exposition of an art exhibition or museum exhibition is introduced into the plot, becomes the defining constructive factor that has an impact on the nature of the audience's perception. Typically, electronic expositions convey the process of their demonstration, which determines present time and the continued fixation of impressions, promoting the main theme of exhibition'. At the same time, such expositions mainly focus on 'variability' of the audience's perception, which is an independent style-forming factor.

The palette of artistic opportunities of information technologies is significantly expanding today through computer 3D-modeling. It was invented as an architect tool and that is why the use of 3D graphics programmes is most effective where the object of interpretation is the architectural structure or its parts – in museums-reserves and museums, located in the monuments of architecture. Computer graphics helps the restorers, allowing them to see three-dimensional structures. The illusory volume and depth give an idea of external and internal structure of the object, revealing their mutual dependence.

Another source of art education are *electronic publications on CD-ROM*, which appeared in 1994. They were designed as computer programs, 'multimedia applications' on various subjects, city guides, museums guides, encyclopedias, and guides on art and culture. Most of these discs contain electronic albums with pictures and text. CD-ROM electronic publications were designed as books with reproductions, making a viewer to think, match the facts and extract the essence of the studied material [22]. Sometimes texts referred to an appropriate

source with a scientific description. DVD video programmes on certain topics can be used as additional material; compared to other visual materials it is able to combine text, sound, animation, and video images into a computer system. Electronic guides of the 'new wave', created in recent years, have a more complicated structure and incomparably rich content; they use modern design and improved navigation methods. Information presentation in these guides is very diverse (text, images and rotation objects, panoramas, animations, interactive graphics, animations, videos, lectures, and musical accompaniment). This active internal circulation of external information at different levels of the movie perception is subject to the influence of subjective world of the filmmaker. That is, the author of the video displayed his feelings, thoughts, will, memory, associations, etc. and is a functional basis of perception of artistic image as specific human spiritual activity. There are disks for professional users (art historians, conservation professionals, monuments preservation workers, and students of the respective specialties). Information material included in the DVD gains multidimensional and semantic complexity due to the presence of the author's (production director and commentator) distinctive identity.

After all, everything is determined by the depth of question formulation and the art credibility of on-screen incarnation. Professionally filmed museum exposition attracts visitors, which in turn increasingly immerse into the multimedia technologies. Thus, the authors of films recorded on Audio Logos discs, in particular 'The Greatness of the Legendary Hellas' (from myths to stories) stop their choice on the most significant monuments of Greece, located in the following regions: Athens, Delphi and Mycenae. Well-designed and spectacularly demonstrated exposition of Delphi Museum allows the viewer to enter its space that constantly transforms and changes. The effect of permanent displacements space and time [23] is enhanced due to historical renovations created with the help of multimedia and lighting means.

Another disc series 'History of Italian Renaissance Fine Arts and Architecture' produced by Italian Luce film institute is based on scientific and chronological description of artworks, starting from the Proto-Renaissance era, represented by Giotto, till late Renaissance, represented by Titian. This artistic epoch, five centuries long, demonstrates formation of a brand-new (compared to the middle ages) system of artistic display. Panoramic shooting of frescoes from a height of 50 meters in a movie about Giotto, unfading scenic coloring of Correggio works gathered together from various museums in the world, universal creativity of Leonardo da Vinci, his discoveries in science, shown in graphic sketches, drawings, anatomical engineering sketches, along with the memories of his contemporaries are combined with logic and documented remarks.

Some discs provide an author's narration of the topic by an art historian with a parallel display of art monuments located in geographical places of their storage. Thus, the 'History and Art' box set by BBC, United Kingdom featuring stories about ideas and values of the middle age and modern Western civilizations by the famous historian and art critic Lord K. Clark is valuable in that the viewer could imagine being his companion traveling around various cities of Europe.

On the other hand, BBC offers a different approach to the study of art works, namely an *author's analytical description of a single masterpiece*. A cycle of documentaries entitled 'The Power of Art' and 'Private Gallery' featuring Bernini's ' 'Ecstasy of St. Theresa', Rembrandt's 'Return of the Prodigal Son', P. Picasso's 'Guernica', etc. deliberately avoid staged scenes and describe the artworks in the language of artists themselves.

Therefore, are dealing with the history of artistic creations, collections and museum multimedia, captured on a two-dimensional film. We observe several elements at once: t the museum item, the museum multimedia and the author himself. Several museums acquire new status due to creation of their own media libraries, featuring movies and educational series based on their own collections, thus facilitating growth of young art historians. The educational fund of virtual museums may consist of books, albums, videos, CDs, slides and computer programs. Multimedia library may combine courses on various topics on the theory and history of art, museum collecting, study and display of exhibit items. The library's great potential can be applied in training of art historians in accordance with plans and standards of a higher educational institution; it can be adapted to specialized author's courses and included in the education environment. That is why today there are new challenges of creating methodical recommendations for systematization of multimedia database in museums and formation of the individual sections of topics depending on specificity and representation of material in the courses of studied disciplines. Furthermore, multimedia libraries can help students and aspirants of cultural departments in their professional activities, particularly, in their practical assignments and research projects [24],[25],[26]. They complement direct communication with artworks, form a professional vision in a future specialist, his ability to refer to the art knowledge obtained in the process of studying: an ability to provide an expert opinion on the work, or

conduct an analytical study in terms of stylistics and visual semantics.

Today, information technologies are widely used at all stages of life cycle of exhibitions and expositions in a modern museum – starting with creation of a scientific and artistic concept of exposition and finishing with its implementation in the the exhibition halls. Selection and analysis of the materials, preparation of documentation for exhibitions and expositions is the most important element of the exhibition activities. While selecting and analyzing collection material at the preliminary stage of exposition preparation, a museum employee may *refer to the database and form a list of items matching the selected criteria* (for example, dates, genre, plot). However, if there is a bank of digitized images an art historian can select material by analyzing the figurative variety presented on the monitor screen, which significantly simplifies subsequent phase of direct work with artworks in the storerooms. Multimedia exposition is a qualitatively new stage of mutual connection of museum and multimedia. It is created in the tipping point when multimedia technologies are no longer a support tool and are now directly woven into the fabric of museum's activities.

4. Conclusion

The aforementioned informatization phenomenon, inherent in different eras and spheres of human activity, particularly brightly reflected in the culture of the twentieth-twenty first centuries in museum environment is expressed in two ways:

- On the one hand, exposition is still the main means of influence in those areas of art history activities where art has increasingly strengthened its position (a museum itself with its funds and databases of storage units).
- On the other hand, informatization permeates certain artistic forms of art works through the introduction or assimilation with other areas of activities. Introduction of technologies into the museum environment means raising awareness about the events of artistic life, as well as attaching particular attractiveness to these events, i.e. strengthening the orientation and motivational accessibility of the art world.

Everything aforesaid clearly demonstrates that the modern educational management and the study of art should be accompanied by a dynamic development of Internet resources and effective use of information technologies in educational practice. They are a powerful tool that allows to supplement the lecture material with various interpretations. A combination of diachronic and synchronic approaches, for instance, plays an important role in studying art of the past eras. Now it is no longer simply about creating content, but structuring and development of multimedia programs, scripts and web sites, hyperlinks, charts, description formats and linguistic profiles of information systems. Today art history in information systems acquires its subject, scientific tools, and analysis techniques. It is not limited to disclosing secrets of multimedia technologies. Museum multimedia should become an intersection of historical and contemporary technologies, fictional and real spaces and, finally, various types of museum activity.

Practical significance of this study is that its results emphasize the attention of art critics on potential communicative aspects of their museum and exhibition activities, and can be used in educational management regarding several humanitarian disciplines. It is necessary to study in more detail the principle of perspective thematic planning of art history courses, to accurately and thoroughly consider common tasks and individual plans in their implementation of information systems. On the other hand, the main feature of art studying of art monuments is the dependence of this study on the state and demands of living educational practice. This is the only way to achieve organic unity, when traditional classical study and electronic resources do not exclude, but enrich each other.

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