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**VIRTUALIZATION OF MUSEUM PRACTICES**

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*Abstract*

This is a first regional scale research of people's attitude to virtualization and museum practices aiming to establish the current situation because there is a perception that the positive public attitude has increased over the past years. Attitude is one of the most important aspects of our life – positive or negative internal thought and emotion about specific issues with an effect on behavior. Attitude is also a type of positioning to act according to the inner state. Therefore, we can predict behavior of individuals if we know their attitude to the specific issue based on values.

The theoretical base for this article was taken from the values orientation studies of Rokeach (1973) and Schartz (1992), and values-attitude studies of Kahle (1983). In turn, the museum value orientation framework with a focus on virtualization is based on the studies of Becker & Paetau (1997) later developed by Bühl (2000). Museum's visitors comprise a little percent of all people in the region; thereby the whole society can be divided into two parts: people with a small cultural experience and people with an ample cultural experience. These two groups also have different museum practice values as well as different attitudes for innovation.

According to the data of regional survey all respondents highly appreciate the possibilities of virtualization of the space of the modern museum.

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**Keywords:** Museum, virtualization, virtual reality, augmented reality, technology, values.



## **1. Introduction**

The era of post-industrial society with an emphasis on the digital space raises the question of the use of digital content. This trend applies not only to preservation, but also to cultural heritage. Certain actions on the use of virtual space in the context of globalization are necessary in different social spheres. It can be seen that new technologies of digital preservation in the form of three-dimensional computer models of Museum exhibits have already been developed and used.

The advantages of computer models are as follows: through prototyping and reverse engineering, the exhibit can not only be seen, but also be held in the hands and interact, thereby allowing a better understanding of the history. Virtual tours through three-dimensional visualization have provided the passage of space. At the same time, immersion technologies in virtual reality are being developed for the purpose of their accessibility and interaction functionality. We need to understand which elements can be virtualized and which cannot be virtualized and how they relate to the preservation of national culture.

### **1.1. Virtual reality (VR), augmented reality (AR)**

Virtual reality and augmented reality (VR/AR) technologies play an increasing role in different areas every day.

### **1.2. Opportunities and innovations**

The term “virtual reality” usually refers to the game space. Using this technology has a number of features, some of which are more complex or unusual than others.

VR/AR technologies are used in various fields (army, education, health, tourism and heritage, business, technology, sports, media, construction, cinema).

- In-depth analysis of the world practice in virtual reality (VR), augmented reality (AR) and cases of gamification for the promotion of tourism, cultural heritage and museum practice is based on the methodology of interdisciplinary research.
- It should be taken into account that ICT (information and communication technologies) specialists form a group together with specialists in cultural heritage (Metzger & Zare, 2001; Rhoten, 2004).

Now opportunities and innovations appear in other sectors related to the use of VR/AR. In the Digi Capital report (2016), increasing of total revenue is projected to be very significant, especially for augmented reality (AR) solutions. Digi-Capital's new 2016 report and AR / VR database include \$ 686 million of investments in augmented and virtual reality in 2015.

The aim of many researchers is to develop a baseline design for a set of technologies and use of virtual and augmented reality to find recommendations for saving of the national culture via the prism of cultural heritage. Cirulis & Co says, “this providing planned and global technological solutions that are not aimed towards individual museums and separate objects of cultural heritage but focused on the overall region” (Cirulis, De Paolis & Tutberidze, 2015).

## **2. Problem Statement**

Virtualization, which means any substitution of reality by its simulation, not only using computer technologies, but certainly using virtual reality logic with the development of information technology and the spread of the Internet, has penetrated into all spheres of human activity: culture, art, psychology, economics, medicine. Modern society supports and stimulates the high rate of development of cultural institutions. This requires them to include in their activities virtual technologies which allow them to be "outside" and "inside" the process, phenomena, while expanding and deepening it. Virtualization as an all-pervading process had a great impact on museums. First of all, it is necessity of positioning, broadcasting themselves additionally in the virtual space.

- The virtual world, like the real one, is constantly developing, filled with new components. The expansion of the boundaries of the new reality creates new opportunities, which become attractive to real cultural institutions. First of all, it is the absence of materiality, corporeality, otherwise – the immateriality of the virtual world. The museum "speaks" to the visitor through the exhibition, which presents museum objects, and they, in turn, convey the code of the era, vectors of cultural development, the spirit of time. Modern culture, striving to combine the results of the deep study of cultural heritage with the interactivity of their presentation, emphasizes the need for a virtual platform for expansion of exhibition opportunities, limits of displaying museum objects both in the quantitative, and in the qualitative relation.
- The process of communication takes place on the same principles as in reality but has a number of features. The virtual space is filled with people and texts generated by them, as well as the real world – the world of the museum. The exposition of museum appears as a text that can be read again and again, considering it from different positions, revealing new facets of what has already been seen and felt.

In the virtual world, the person feels no boundaries, lives only here and now, without past and future. Communication with computers, their animation brought to the world the idea of man-creator. The ability to create your own world in a different time and space has made the computer a creative phenomenon. The technical means have allowed one to materialize creative reality that has long existed in the culture.

### **2.1. Virtual world**

A virtual person without his real body, without the problems of the real world can create anything. This virtual world gives unlimited resources for the manifestation of themselves, their creative potential. One of the results of creative activity of a person or a group of people is the phenomenon of modern culture - a virtual museum.

### **2.2. Virtual museum**

The term "virtual museum" appeared about 15 years ago, when the first projects with this name were launched. Despite this, up to now there is confusion in terms of "museum site" and "virtual museum". By "virtual museum" we mean a set of images with explanatory texts on the Internet and virtual adventure in real museums.

### **3. Research Questions**

Currently, the term "virtual museum" is created by the laws of museum design. This is a special technology for creating an exhibition: the presence of scientific, architectural and artistic concepts and exhibition scenario linking them.

#### **3.1. Opportunities of practice of museum**

The emergence and active distribution of virtual museums put before researchers the question of the feasibility of its creation and meaning of its existence. Taking into account the widespread use of the Internet, it is necessary to focus on the advantages of virtual museums over the real ones. For example, the virtual museum provides free mass access to its collections, while the real museum because of the high cost of entrance tickets or limited time of visit may not be available to a certain category of visitors. Virtual museums also seem to be a positive phenomenon in terms of accessibility to a large number of visitors, who for various reasons can not visit the real museum, for example, people with disabilities. However, the virtual museum has not yet had such impact on the visitor as visiting a real museum. First of all, it is the authenticity of the museum objects themselves, the atmosphere of the museum, the very visit to the museum as an act of familiarizing people with the beautiful and mysterious past.

#### **3.2. Two types of museums: virtual vs traditional**

The virtual museum distorts the idea of the museum itself as a cultural form historically developed by mankind for the preservation, actualization and translation to the next generations of the most valuable part of the cultural and natural heritage. Computer technologies, thanks to which there is a virtual museum, provide the possibility of unlimited filling of the subject with new meanings, creating a greater number of different exhibitions in order to present the subject in the most accurate and complete way. Such real and qualitative amount of information and multidimensional virtual museums attract new visitors (Internet users), introducing them not only the past of the object or phenomenon, but also one's life in the present. However, in the field of sign understanding virtual museums are inferior to the traditional, as most people need visual or audio interaction with the sign in order to give the object value.

No less important aspect of the consideration of the positive and negative characteristics of virtual museums is the economic component. When referring to modern computer technologies that allow you to create and quickly fill the content of the virtual page, the answer to the question of the economic benefits of the virtual museum before the real becomes obvious. In addition, the economically advantageous model of the museum supports not only a relatively low cost at the stage of creating the project, but also less expensive than the real museum, the further life of the virtual museum.

A special moment in comparison of the two types of museums is the control of their activities. Real museums are controlled by official's organizations, while virtual museums are limited to censorship. The openness of the virtual museum is also questioned at least by the fact that in most cases the user is not acquainted with the creators of this museum, its employees.

Thus, when considering the positive and negative aspects of the existence of virtual museums, we come to the conclusion that this cultural phenomenon has the right to life and has a sufficient number of grounds to be the object of evaluation and study.

## **4. Purpose of the Study**

Attitude is one of the most important phenomena of human life based on human values (Beatty, Kahle & Homer; 1991, Kilby, 1993). Rokeach considered that value is an enduring belief that a specific model of conduct or end-state is personally preferable to its opposite (Rokeach, 1973).

### **4.1. Studies of values orientation**

As abstract social conditions, values serves as prototypes from which attitudes and behaviours are created. Values also guide people through different situations telling how to act. Kahle consider that influence flows from abstract values to attitudes and ends with adequate behavior. This sequence can be called "the value - attitude - behaviour hierarchy" (Kahle, 1983). Values are ranked by importance relative to one another, and ordered in several studies (Schwartz & Bardi, 2001; Schwartz & Sagiv 1995; Schwartz, 1992, 1994).

### **4.2. Socio cultural values orientation**

Socio cultural values orientation in these studies was defined as the direction and intensity among the basic culture models (Bond & Smith, 1996; Henry, 1976; Komorita & Parks, 1994; White, 2005; Williams, 1979).

These studies have repeatedly found that cultural values orientation influences the attitudes of people towards traditional museums conservation.

However, the virtual museum presents all visitors some new opportunities, including disabled. This is an important point of ensuring equal rights for all.

The goal of this research was to determine attitudes of regional people about virtualization of museum practice through values orientation by innovation.

## **5. Research Methods**

The current survey determines the attitude of the inhabitants of the region to the virtualization of museum practice, includes knowledge, emotions and actions of respondents.

### **5.1 Methods of examination**

The attitude towards museum practice virtualization was measured directly from the answers to 15 questions.

### **5.2. A study of the attitude to the virtualization of museum practice**

The study of the attitude to the virtualization of museum practice began with expert interviews and a pilot survey, followed by an Internet survey, during which respondents in Kursk region were interviewed from 10.01.2018 to 01.03.2018.

250 respondents were collected in proportion to the entire region. 59.2% of respondents are women and 40.8% are men.

By analysing answers to 15 questions, respondents were divided into different groups.

The indirect and detailed measurement of the attitude towards museum practice virtualization was no different from the attitude towards virtualization at all, revealed through direct questions (what your attitude towards virtualization is?) that have already been analysed in previous articles of the authors (Andriyanova, Kirnosova, & Starodubtseva, 2017; Matassa, 2014).

## 6. Findings

Finding of research presents below.

### 6.1. A museum virtualization possibility

We found out from the respondents what possibilities a museum virtualization have. 51.2% of respondents chose the answer "availability of a large number of interactive exhibits"; 34% chose "availability of QR-codes for each exhibit"; 50.4% chose "availability of equipment (TVs, tablets and other electronic installations), reproducing basic information about the exhibits"; 38.4% chose "the presence of audio guides"; 20.8% chose "the presence of their own Wi-Fi network", 38.4% chose "the presence of a virtual tour".

### 6.2. Interactive exhibits, QR-code

The question about interactive exhibits yielded the following results: 82.4% of respondents agree to go to the museum with interactive exhibits; 17.6% said that despite the appearance of interactive exhibits, they will not go to the museum.

The question of increasing visitor's awareness of the exhibits in the presence of QR-code gave the following results: 39.3% of respondents answered this question positively; 49.4% of respondents believe that the QR-code can slightly raise awareness; 11.2% said that the QR-code does not raise visitors' awareness of the exhibits.

- The main advantage of QR-code is easy recognition by scanning equipment, including a camera of a mobile phone.
- It is enough to run the QR-code reader, point the lens of the mobile device to the QR-code, and the visitor will have quick access to information about the object. With this technology, the museum visitor can get much more interesting and rich information than through text and additional illustrations.

We figured out which virtualization definition respondents are more inclined to. Two definitions were given for the choice, one of which is interpreted within the framework of the structural and functional approach, and the other-within the framework of the socio – phenomenological approach. The results can be seen in Table 2.

**Table 01.** Distribution of answers to the question: "Which of the following virtualization concepts do you agree with? »

Answer choice	Percent
Virtualization is the transition of the main activities in the virtual space of the Internet	66.4
Virtualization is one's using of new forms of communication for self-reproduction and self-satisfaction of the person	33.6

To the question "What should a museum be like to become a regular visitor?" 51% of respondents answered that a museum should have modern technology and qualified staff; 25.2% believe that a museum should quite often change the exhibitions and expositions; 10.4% say about the need for a museum to have its own original face, to represent a unique collection.

## **7. Conclusion**

When comparing virtual and real museums, the following situation is obtained. Virtual museums attract and win attention with pleasant communication, warmth and hope for a long friendship – the visitor feels it in conversations on narrow topics relating to the subjects of this museum, in an invitation to try yourself as a museum employee and much more.

### **7.1. The transfer of information about the museum object**

Thus, it is necessary to take into account the increasingly technological development of museums, which means that in the near future we will have to think about the boundaries of the transfer of information about the museum object.

### **7.2. Virtual museum to be an educational or training ground in the educational process**

The most advantageous, in our opinion, is the possibility of a virtual museum to be an educational or training ground in the educational process: for example, in a virtual museum you can pass a quest or perform test tasks.

Despite the absence of clear definitions of the concepts of "virtual reality" and "virtual museum", the spread of virtualization of museum practice and research interest in this phenomenon indicate the further growth of this type of museums both in quantitative and qualitative terms.

- As a result of the survey, it was found out that respondents want to see more different exhibits and, in particular, interactive exhibits, interesting expositions and exhibitions, as well as unusual events in a Museum.
- Residents of the region are sufficiently aware of the main opportunities of virtualization of museum space and, in addition, would like to see and use some of them.

Almost respondents all positively evaluated virtualization but the positive attitude towards variables like «virtual reality" and "virtual museum" was considerably ranged depending on innovation potential of region.

Generally, this study provides information on socio-cultural values and attitudes towards of virtualization of museum practice which can help all stakeholders to understand the diversity of value orientations and improve their performance in virtualization development.

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## References

- Andriyanova, T., Kirnosova, E., Starodubtseva, I. (2017). Culture and art in modern society: a view from the region. *4<sup>th</sup> International multidisciplinary scientific conference on social sciences and arts SGEM 2017. Book 6. Science and arts. Volume 1. Culture studies, ethnology and poetry, history of arts. contemporary arts, performance and visual arts (28-31 March 2017)*. Sofia, Bulgaria: STEF92 Technology Ltd., 23-31. doi:10.5593/SGEMSOCIAL2017/HB61/S7.03
- Beatty, S.E. Kahle, L.R. Homer, P. (1991). Personal Values and Gift-Giving Behaviours: A Study across Cultures. *Journal of Business Research*, 22, 49- 157.
- Becker, B., Paetau, M. (1997). *Virtualisierung des Sozialen: Die Informationsgesellschaft zwischen Fragmentierung und Globalisierung*. Frankfurt a: M.: Campus Verlag.
- Bond, R., Smith, P.B. (1996). Culture and conformity: a meta-analysis of studies using asch's line judgment task. *Psychological Bulletin*, 119, 1, 111-137.
- Bühl, A. (2000). *Die virtuelle Gesellschaft des 21. Jahrhunderts*. Wiesbaden: VS Verlag für Sozialwissenschaften.
- Cirulis, A., De Paolis, L.T., Tutberidze, M. (2015). Virtualization of Digitalized Cultural Heritage and Use Case Scenario Modeling for Sustainability Promotion of National Identity. *Procedia Computer Science, Volume 77*, 199-206.
- Augmented/Virtual Reality Report (2016). Retrieved from: <https://www.digi-capital.com/news/2016/01/arvr-investment-in-2015-breaks-out-near-700-million/#.WuMA1qSFPX4>.
- Henry, W.A. (1976). Cultural Values Do Correlate with Consumer Behaviour. *Journal of Marketing Research*, 13, 121-127. doi: <http://dx.doi.org/10.2307/3150845>
- Kahle, L.R, Ed (1983). *Social Values and Social Change: Adaptation to Life in America*. New York: Praeger.
- Kilby, R.W. (1993). *The study of human values*. Lanham, Md: University Press of America.
- Komorita, S.S., Parks, C.D. (1994). *Social dilemmas*. Dubuque, IA: Brown and Benchmark.
- Matassa, F. (2014). *Organizing Exhibitions. A handbook for museums, libraries and archives*. London: Facet Publishing.
- Metzger, N., Zare, R.N. (2001). Interdisciplinary research: From belief to reality. *Science*, 283(5402), 642-643.
- Rhoten, D. (2004). Interdisciplinary research: Trend or transition. *Items and Issues*, 5(1-2), 6-11.
- Rokeach, M. (1973) *The nature of human values*. New York: Free Press.
- Schwartz, S.H., Bardi, A. (2001). Value hierarchies across cultures. *Journal of Cross-cultural Psychology*, 32, 3, 268-290.
- Schwartz, S.H. (1992). Universals in the content of and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, 25, 1-65.
- Schwartz, S.H. (1994). Are there universal aspects in the structure and contents of human values? *Journal of Social Issues*, 50, 19-45.
- Schwartz, S.H., Sagiv, L. (1995). Identifying culture-specifics in the content and structure of values. *Journal of Cross-Cultural Psychology*, 26, 1, 92-116.
- White, C. (2005). Towards an understanding of the relationship between work values and cultural orientations within the Student Decision Making Process. *Journal of Further and Higher Education*, 27, 3, 271-287.
- Williams, R.M., Jr (1979). Friendship and social values in a suburban community. *Pacific Sociological Review*, 1, 3-10.