Розділ 3. Прикладні соціокомунікаційні технології

Part 3. Applied Communication Technologies

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COMPARATIVE ANALYSIS OF VIRTUAL EXHIBITIONS OF MEDICAL MUSEUMS IN UKRAINE AND ABROAD

The Internet has opened new opportunities for effective communication of information provision activities of various institutions. Museums did not become an exception and began to apply new means in communication policy. Virtual exhibitions solve the problems of saving time and financial costs, however, carrying important information content. The experience of world exhibitions of medical museums is considerably higher than the level of virtual exhibitions implementation in Ukraine.
Keywords: *virtual exhibition, virtual exposition, virtual excursion, online excursion, digitalization, Internet exhibition.*

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ПОРІВНЯЛЬНИЙ АНАЛІЗ ВІРТУАЛЬНИХ ЕКСПОЗИЦІЙ У МЕДИЧНИХ МУЗЕЯХ В УКРАЇНІ ТА ЗА КОРДОНОМ

Актуальність. Інтернет зумовив нові можливості для ефективної комунікації різних установ в інформаційному просторі. Музеї не стали винятком та почали застосовувати нові засоби в комунікативній політиці. Нові технології, такі як VR, AR та Web3D, широко використовуються для створення віртуальних музейних виставок, зокрема в музеях медицини, як у музейній обстановці, так і через інформаційні кіоски в World Wide Web.
Мета статті — здійснити порівняльний аналіз представлення віртуальних експозицій у вітчизняних медичних музеях та за кордоном.

Методологія. Для виконання дослідження використано порівняльний метод, методи опису, зіставлення та узагальнення.

Результати. Музеї зацікавлені в оцифровуванні їх колекцій не лише для збереження культурної спадщини, але й для того щоб зробити інформаційний зміст доступним для широкої громадськості. Технології віртуальної реальності (VR) і розширеної реальності (AR) є ідеальним презентаційним середовищем для медичних музеїв та інших установ культурної спадщини. Віртуальні виставки дозволяють різним аудиторіям, зокрема інвалідам і студентам різного віку, а також широкій публіці отримувати доступ та ознайомлюватись з величезною кількістю об'єктів, що розміщені в різних місцевостях, і подавати це цікавим та інформативним способом.

Новизна. У цьому дослідженні вперше здійснено аналіз віртуального представництва шести відомих світових музеїв. Проаналізовано віртуальне представництво 33-х медичних музеїв з 18 країн.

Практичне значення. Матеріали і висновки дослідження можна використовувати в процесі викладання з сучасних інформаційних технологій у музейній справі.

Висновки. Віртуальні виставки вирішують проблеми економії часу та фінансових затрат, однак несучи важливе інформаційне наповнення. Користувацькі взаємодії в межах віртуального медичного музею ефективно виконуються за допомогою допоміжних технологій, щоби користувачі могли відчувати себе повністю пов'язаними з віртуальними музейними артефактами і таким чином отримувати вигоду з точки зору освіти та розваг. Однак нині досвід світових виставок (зокрема у сфері медицини) значно вищий рівня реалізації віртуальних виставок в Україні.

Ключові слова: *віртуальна виставка, віртуальна експозиція, віртуальна екскурсія, онлайн-екскурсія, діджиталізація, інтернет-виставка.*

Introduction. With the development of the Internet, the number of users who prefer the use of electronic resources is constantly increasing. Thus, in 2017, according to a study of the Ukrainian Internet audience, the network contained 21.6 million users (media analysis of TV, radio, printed media, Internet media, social networks, 2020). Most users choose the Internet to meet information and other needs. Therefore, every year, the issue of network integration in the so-called "non-productive" spheres, which includes culture in particular, arises. Thanks to the latest technology, there are such phenomena as "virtual exposition", which also corresponds to the concept of "virtual tour", "Internet exhibition" and "cyber-exhibition". In general, virtual exhibition is an online exhibition featuring cyberspace. The virtual exhibition is a relatively new stage in the process of informatization of the cultural sphere.

The advantages of virtual exhibitions. If we talk about exhibitions in general, it is a demonstration of human achievements in various fields, which are presented for review at the venue of a certain exhibition event. With the advent of virtual exhibitions, there are new benefits that until now haven't

been typical for ordinary exhibitions. Museums and other organizations create online exhibitions for many reasons. For example, a virtual exhibition can expand the materials presented on the site using visualization tools, completing text information. Thus, an online exhibition can be of interest because visual information is easier to perceive (Bilushchak, Fedushko, 2016). As a result of growing interest for the object of the cultural sphere, its wide online register is created. Another advantage of virtual expositions is saving of production costs, which include insurance, delivery and installation. The introduction of such exhibitions also solves such a problem as preserving the integrity of the exhibits of the physical exhibition. It's about processing fragile or rare objects. Such a virtual museum gives additional benefits to the fact that it is possible to display artifacts that are generally not available, except for selected ones, for example, exhibits that cannot be accessed due to their weak nature or other conservation issues or those that cannot be displayed simply due to the lack of physical space (Louvre, 2020). It is equally important that a virtual exhibition can reach a much larger audience: access to information is no longer limited to those who can afford travel and museum visits, but accessible to anyone who has access to a computer with the Internet connection. Unlike physical exhibitions, online exhibitions are not limited in time, since they are not forced to work under a certain work schedule with a limited work day. Such exhibitions are available around the clock.

The emergence and distribution of virtual museum exhibitions. In the non-profit world, many museums, archives, universities and other cultural organizations create online exhibitions. Internet exhibitions are also increasingly used by businesses and individuals. Another branch is virtual book exhibitions, the introduction of which has already become widespread in Ukraine. If by 2009, online exhibitions were 1% on the market of the industry of events (Kudria, 2009), then, with the constant development of technologies, this rate became much higher.

The earliest museum for which an online exhibition was created is the Oxford (History of Science Museum, 2020). The first exposition was presented — "The Measurers: a Flemish Image of Mathematics in the XVI century" (The Measurers: a Flemish Image of Mathematics in the XVI Century, 2020). At first, the web pages were simply a reference to the library of the museum, but it soon became clear that they could be used to promote the museum and advertise new exhibitions. The new material has been added and the site has become more informative. By mid-1995, it was decided that the website needed radical changes. It was decided that the site should have a navigation system that will allow the visitor to access all material intuitively. For today, the Ashmolean Museum has launched a major project

to digitize its collections to produce 250 000 exhibits on the Internet by 2020 (Liarokapis, Sylaiou, Basu & et al., 2004).

This fact confirms that the first attempts to develop virtual exhibitions were made abroad, now Ukraine applies world experience in this area. Typical content for museum directories and presentations is usually limited to multimedia presentations, for example, interactive CD-ROMs — see Figure 1.

However, there is a growing interest in virtual museum exhibitions that use Web3D and Augmented Reality (AR) technologies that integrate virtual environments, 3D graphics, and interactivity in web applications (Liarokapis, Sylaiou, Basu & et al., 2004).

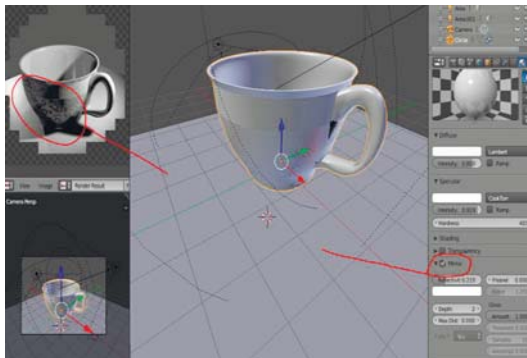Figure 1. Presentation of museum exhibits in CD-ROM

Figure 2. Presentation of museum exhibits with the help of Web3D

A comparative characteristics of Ukrainian and world virtual museums. Of course, the provision level of visual information abroad and in Ukraine is fundamentally different. And this can be seen with help of comparative analysis of virtual exhibitions of museums. For virtual visitors, a bibliographic list of the most famous museums in the world is presented at the site of the online exhibition: the Louvre — Paris, France (Louvre, 2020), the Metropolitan — New York, USA (The Metropolitan Museum of Art, 2020), and the Hermitage — Petersburg, Russia (The State Hermitage Museum, 2020). On the Louvre and the Metropolitan sites there are virtual exhibitions in the form of photo collections of exhibits. An additional source for getting acquainted with the objects presented at the exhibition is video materials accompanied by text explanations. As far as the Hermitage is concerned, the results of realization of the virtual tour are best represented on the example of the site of this museum. The Hermitage website displays a layout of a building with numbered halls by clicking on the desired number, a virtual tour appears, where each room is presented from all sides using 3D models. This creates the impression of staying on a real tour, because there is a possibility to explore everything in more detail. This is useful for those who cannot visit the museum for some reason, and an online excursion is free and available at any time. The pages of these three museums are posted on Facebook.

Based on the information contained in the social network, we analyze the popularity of museums (Figure 3).

Based on the analysis of the number of preferences and visitors on the pages of museums in Facebook social network, the most popular and visited site is the Louvre museum. The Hermitage's indicators are much lower than other museums.

Other world museums that have already tried to practice the introduction of virtual exhibitions are: the Museum of the History of Art — Vienna *(Kunst Historishes Museum Wien, 2020*), the British Museum — London (The British Museum, 2020), the National Gallery — Athens (the Alexandros Soutzos National gallery Museum, 2020), the Estonian Historical Museum — Tallinn (*the Estonian History Museum, 2020*), the Picasso Museum — Barcelona (the Picasso Museum, 2020) and many others. This once again proves that the world experience of using online exhibitions and excursions to improve the content of your site and attract more audiences is significant and widely used in practice. As for virtual exhibitions in Ukraine, it differs significantly from world practice. Under the virtual exhibition or virtual tour, photo exhibits with short information about them and their author are posted. In this way the Internet exhibition was presented on the website of the Pedagogical Museum of Ukraine. It is clear that such an exhibition
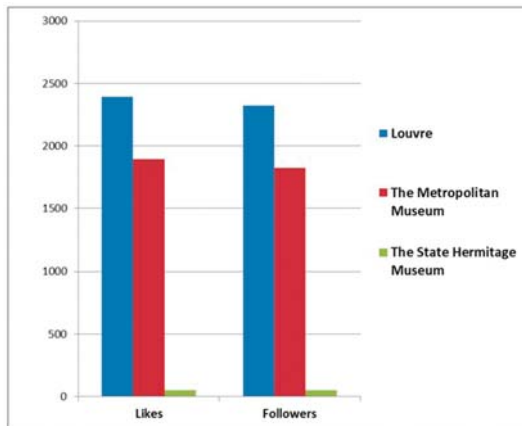
Figure 3. Analysis of museums' pages in Facebook

also carries informational content for visitors, but it does not adequately correspond to the term "virtual". Often on the sites of Ukrainian cultural institutions virtual exhibitions are presented in the form of articles, the additions to which are photographic materials.

The Internet exhibition on the site of the Lviv Museum of Religious History is presented in this way, so it is not particularly informative. Virtual exhibitions are also presented on the sites of other museums, namely: National Taras Shevchenko Museum — Kyiv (the National Museum of Taras Shevchenko, 2020), the National Art Museum of Ukraine — Kyiv (the National Art Museum of Ukraine, 2020), the M. Yaroshenko Poltava Art Museum (the M. Yaroshenko Poltava Art Museum, 2020) and others.

To compare important aspects of museums with virtual exhibitions, a chart is drawn up on the basis of an expert assessment (Figure 4).

As seen in Figure 4, information resources of foreign museums play an important role in promoting museums. They are designed according to the specifics of museums, emphasizing unique exhibits. Among all the analyzed information resources, only the information resource of the Louvre (Paris, France) is adapted for viewing by people with disabilities, only the information resource of the State Hermitage Museum has the presentation function of the virtual exhibition with video materials.

Analysis of virtual exhibitions of medical museums in Ukraine and abroad. By the method of thorough analysis of information resources of medical museums, a list of 33 medical museums from 18 countries, which are well represented on the Internet, was formed. This list includes medical museums from the following countries: Australia, Azerbaijan, Canada,
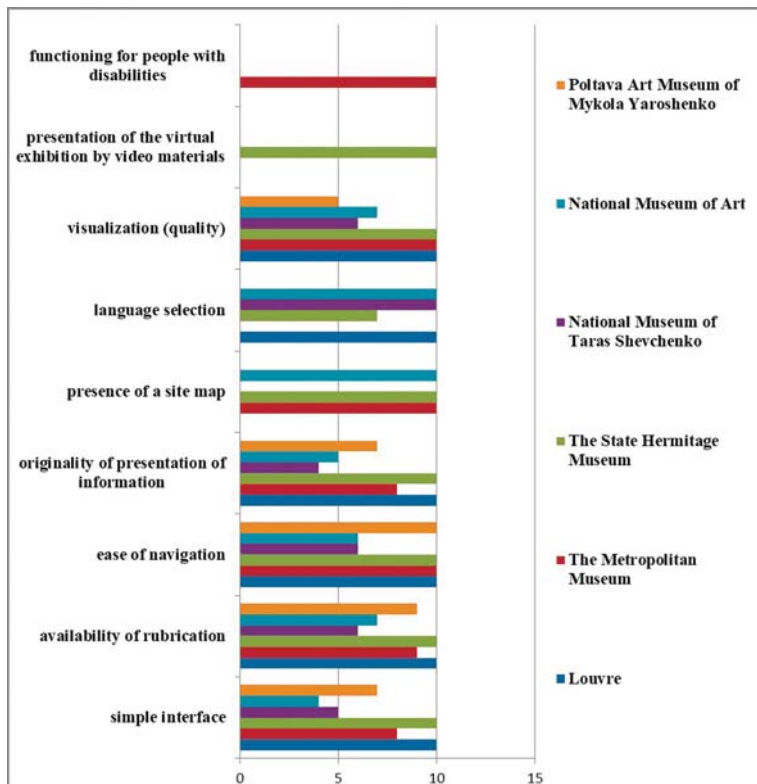
Figure 4. Comparative diagram of the main characteristics of information resources of museums on the basis of expert assessment

Denmark, France, Germany, Hungary, Iran, Italy, Japan, Latvia, Mexico, Russia, Spain, Sweden, Switzerland, the United Kingdom and the United States. The most popular medical museums, which are presented to users in cyberspace, by developing information resources with virtual exhibits, 3D tours and other new tools, are presented in Figure 5.

Apparently the most established museums in medical sphere are in the following countries: Japan, the US and Canada. Accordingly, their information resources are well designed with quality and relevant content with features and tickets booking, indicating the geo-location of the museum, with 3D tours, descriptions of exhibits, as well as features that are designed for attraction of visitors. We should also mention the London Museums of Health & Medicine (Figure 6), which unites 23 medical museums and medical organizations (*The London Museums of Health & Medicine, 2020)*, and was founded in 1991.
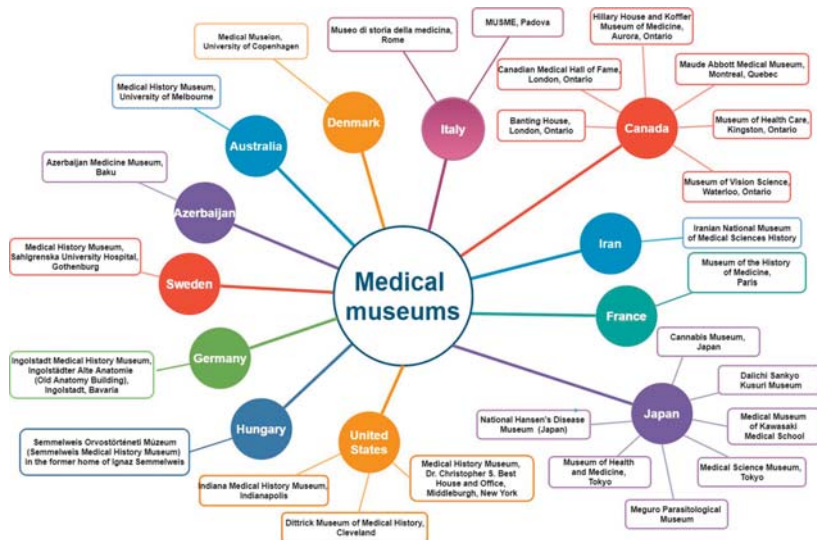
Figure 5. List of the popular medical museums of the world

The website of the London Museums of Health & Medicine presents a calendar of events and exhibitions. As we see every day the London Museums of Health & Medicine presents two exhibitions. This demonstrates the high demand in the medical society for virtual exhibition museums.

At the Medical Museion, the University of Copenhagen, Denmark, visitors could take part in communicative experiment "Life on the Line — A Game about Ageing" (Figure 7).

In contrast to foreign experience, in Ukraine medical museums are popular almost only among students of medical schools, universities and medical professionals.

During the COVID pandemic, unlike foreign museums, a difficult period came for Ukrainian museums. The availability of virtual tours on museum information resources became very important during this period. For example, such as virtual tour at the Prince Henry Hospital Nursing & Medical Museum in Australia (the *Prince Henry Hospital Nursing & Medical Museum in Australia, 2020*), which is shown in Figure 8.

A good initiative is the creation of 3D tours of museums in the information resource "Museum Portal". This resource also presents 3D tours of Ukrainian museums, such as the National museum of medicine of Ukraine (https://museum-portal.com/ua/museum/national-museum-of-the-history-of-medicine), presented at Figure 9:
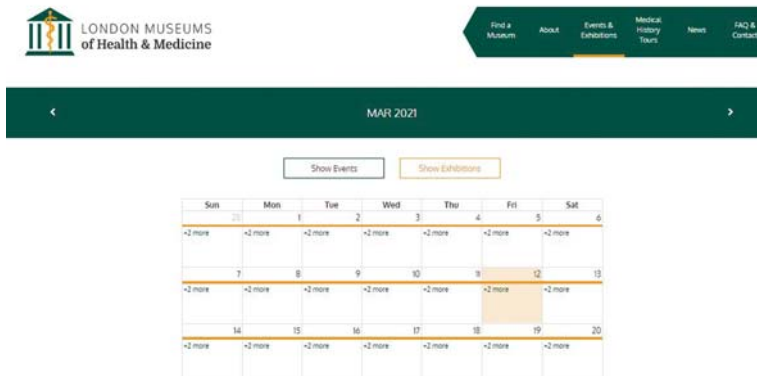
Figure 6. Events and exhibitions taking place in the London Museums of Health & Medicine

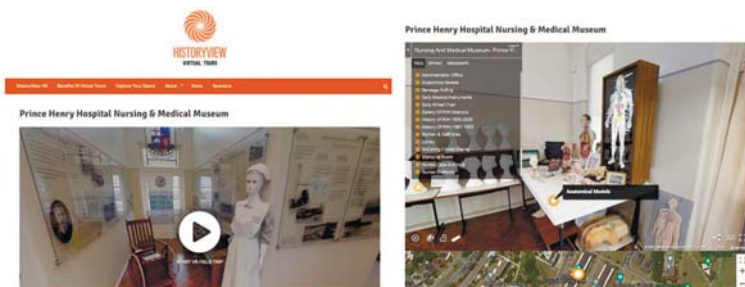Figure 7. Presentation of communicative experiment "Life on the Line"

Figure 8. Virtual 3D tour
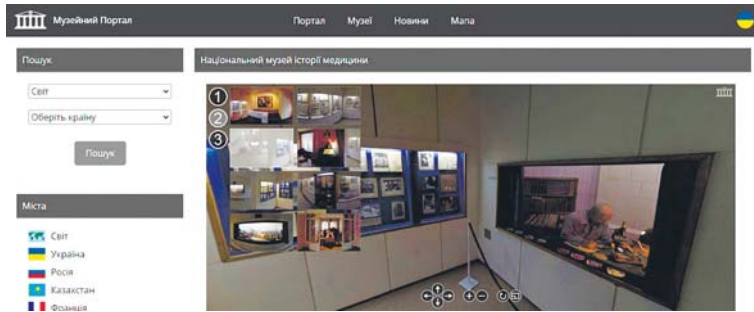of the Prince Henry Hospital Nursing & Medical Museum in Australia

Figure 9. Virtual 3D tour of the National museum of medicine of Ukraine

In addition, on the information resource "Museum Portal" the virtual 3D tour of Pirogov National Memorial Medical University (Vinnytsya) and virtual 3D tour of the Pharmacy Museum "Under the Black Eagle", are presented. (Figures 10 and 11).

In general, Ukrainian museology industry is developing rather slowly. Foreign museums receive a good financial support for the development of information resources, introduction of new technologies in museums, including medical museums.

Conclusions. Analyzing the diagram, we can conclude that in all aspects the Hermitage is the best represented one in the Internet space. It is an excellent example of a museum virtual tour. The problem of both Ukrainian and world museums is the low level of application of video materials at the introduction of the virtual exhibition. Museums prefer photo materials, but they are not as informative as video material. The functioning of the site for people with disabilities was seen only on the website of the Metropolitan.

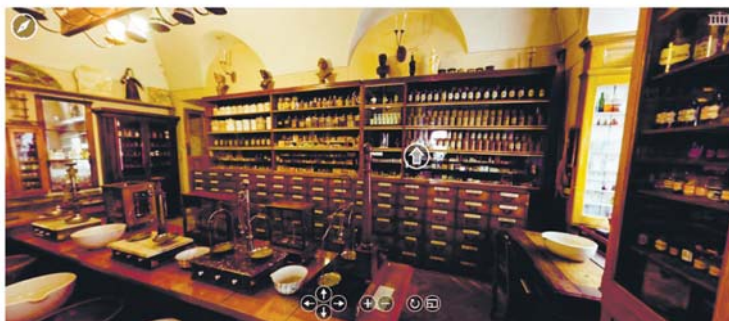Figure 10. Virtual 3D tour of Pirogov National Memorial Medical University

Figure 11. Virtual 3D tour of the Pharmacy Museum "Under the Black Eagle"

Comparing the virtual exhibitions of world and Ukrainian medical museums, it became clear that Ukraine is still taking steps towards the application of world experience. After all, the virtual exposition of medical museums in Ukraine does not adequately correspond to the definition of "virtual", without Web3D and Augmented Reality (AR) technologies. It is a disadvantage and incompleteness of such exhibitions.

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