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AUGMENTED REALITY TECHNOLOGY FOR THE SCIENTIFIC PUBLICATION ON THE HISTORY OF THE HIGHER EDUCATION LIBRARIES

ABSTRACT:

The article highlights the experience of using infographics and augmented reality elements (QR code markers) to visualise information in the Scientific Library of the Kyiv National University of Culture and Arts: Times of Change and Augmented Reality anniversary scientific publication.

Creativity is as important now in education as literacy.

Sir Ken Robinson

INTRODUCTION.

Scientific and publishing activity is one of the forms of library information activity at higher educational institutions of Ukraine (hereinafter – university libraries). As a result, intellectual products of different types are created: scientific, information and analytical, bibliographic, reference ones, etc.

In the academic library community of Ukraine, there is a tradition to put out the publications in observance of round anniversaries in the libraries history of various institutions and universities. A feature of these publications is their informative and awareness content for the intended readers on changes and achievements in library life.

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Analysis of sources and publications. Discussion topic on libraries and higher educational institutions' historical studies dates back to 1993 at the conference "The Monasteries, Cathedrals and Other Institutions' Participation in the Development of Ukrainian Culture", held in Kyiv [1]. Since then, there has been an increase in the number of publications on the history of librarianship in general and the formation of libraries of lyceums and universities in particular. Usually, the articles and some publications, published on anniversaries, highlight the stages of development, the personalities of founders and managers, staff, and analyse the composition and specifics of funds, unique collections, information resources of libraries, and so on. Most often, the historical context of the development of university libraries in Ukraine is revealed in publications of the following types:

- *scientific publications*: history of scientific libraries of V. N. Karazin Kharkiv National University [2]; Odesa I. I. Mechnikov State University [3] to 200th anniversaries; Scientific and Technical Library of the Lviv Polytechnic National University to the 165th anniversary [4]; Scientific and Technical Library of NTUU KPI named after Professor H. I. Denysenko [5] to the 100th anniversary; Scientific Library of the National Pedagogical Dragomanov to the 90th anniversary [6]; Scientific Library of the Kyiv National University of Culture and Arts to the 55th anniversary of its foundation [7]; Scientific Library of Uzhgorod National University to the 50th anniversary [8];
- *scientific and local lore research* – to the 100th anniversary of the Library of the Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University [9]; to the 40th anniversary of the Library of the Technological University of Podillia (since 2004 – The Scientific Library of Khmelnytskyi National University) [10];
- *historical essay* – to the 50th anniversary of the Scientific Library of the Kyiv National University of Culture and Arts [11];
- *reference and bibliographic publication* – to the 90th anniversary of the Scientific Library of the Admiral Makarov National University of Shipbuilding [12];
- *reference book* – to the 60th anniversary of the Scientific Library of Uzhgorod National University [13];
- *guide-book* to the Scientific Library of Oles Honchar Dnipro National University to the 90th foundation anniversary [14].

In the structure of almost all of the above publications, information and facts are visualised using photos and tables with statistical data. However, the

authors of only one publication have already announced the use of augmented reality to visualise the presented content in the title [7]. The relevance of the topic is increased by the lack of research on the experience of using augmented reality markers, namely QR codes, to visualise information in a publication on the history of the university scientific libraries.

The challenges of the modern information society encourage the transformation of traditional publishing projects of libraries, and augmented reality technology contributes to creating new scientific publications on the history of library science in form and content, which determined the purpose and objectives of this research.

The purpose of the article is to expand the boundaries of knowledge about the possibilities of using augmented reality elements and infographics in scientific publications on the history of library science. It is necessary to implement the following tasks to achieve this *purpose*:

- to describe the case of information visualisation in the *Scientific Library of the Kyiv National University of Culture and Arts: Times of Change and Augmented Reality* scientific publication;
- to identify the opportunities and advantages of the use of augmented reality technology and infographics in printed publications.

Research methodology. The following theoretical and empirical research methods were used to implement the tasks: source study and analytical method is to identify and study the national experience of preparation of publications on the history of university libraries; the comparative method is to identify similarities and sort publications by type; filing is to learn and understand the possibilities of using augmented reality technology to visualise factual information and image galleries. The list of anniversary publications on the history of university libraries, consisting of 13 titles, was formed based on Google search results.

THE MAIN PART.

There are different ways of perceiving information: graphic, visual, and mental, but only one is dominant for each person. Studies [15] confirm that: visual information is perceived 60,000 times faster than text information; 80% of people remember what they see, compared to ten per cent what they hear and 20 per cent of what they read; visual colour effects increase reading readiness by 80%. In addition, the digital generation of library users feels comfortable in a social circle full of images, audio and video from various

sources.

The *Scientific Library of the Kyiv National University of Culture and Arts: Times of Change and Augmented Reality* scientific publication was issued for the 55th library foundation anniversary, which was celebrated in 2018 and highlighted the diversity of its activities.

As a result of library interaction with the digital world, information technology and services actively penetrate all areas of library activity, including publishing. Considering that experienced users of digital technology want to be participants and not just listeners, the authors proposed a special format of the publication, which provides for the use of infographics and augmented reality markers to demonstrate the use of the technology in library publishing activities. In total, the publication includes 15 infographic images, namely: a scheme of the library organisational structure, seven timelines, three mind maps, two interactive posters, a virtual tour of the library, and a word cloud.

From Latin, *informatio* translates as a message, explanation, and *grafiko* means to write, so infographics are a graphical way of information transmission, its simplification and speeding up understanding [16]. Augmented reality (AR) is a supplement of the physical world with digital data provided by computer devices (smartphones, tablets) in real-time [17].

When developing infographics for visualising facts from the library's history, describing the activities of the scientific direction, such advantages as the ability to demonstrate the ratio of points in time, convenient data viewing format, the ability to organise and systematise large amounts of information were taken into account. For example, with the help of the timeline, the library heads during 1963-2018 were presented, and the periods of their activity were chronologically visualised. The other six timelines visualise the results of the library publishing activities, presenting a list of library publications in three series: KNUCA's Scientists, Outstanding Figures of KNUCA, Significant Dates of KNUCA and three types: scientific, informational, and bibliographic publications. With the help of three mind maps, readers are offered organised information about electronic resources and multimedia products created by staff and all library publishing activities for 2013-2018.

Using AR technology based on QR code markers (or image recognition), the authors created an intrigue about the information content of infographics. For example, with the help of a QR code, a reader can open interactive posters Library Scientific Calendar or 12 Creative Ideas Realised in the Library in 2013-2018 on his smartphone and, by clicking on the corresponding marker, read a short message about the event, examine suggested illustrations.



The use of QR codes in the publication of the library history aimed to create a WOW effect, increase information saturation, and offer novelty. QR code (from the English Quick Response Code) opens to readers such opportunities to expand the boundaries of a printed publication as:

- viewing a gallery of photos, book trailers, bibliotransformers, and video presentations;
- viewing infographic content presented as interactive posters, word clouds, and mind maps;
- viewing and listening to the video, the content of which is described on the pages of the book.

Significantly, the authors of the anniversary publication want to express their gratitude to all the “library staff of different years” who for 55 years creatively and enthusiastically, faithfully and persistently, selflessly and sincerely worked and made a worthy contribution to the development of the Scientific Library...” [7]. In addition to the above words of gratitude, the chapter “Our Strength is in the Team” contains a word cloud consisting of the names of all staff who worked in the library during 1963-2018 (fig. 1).

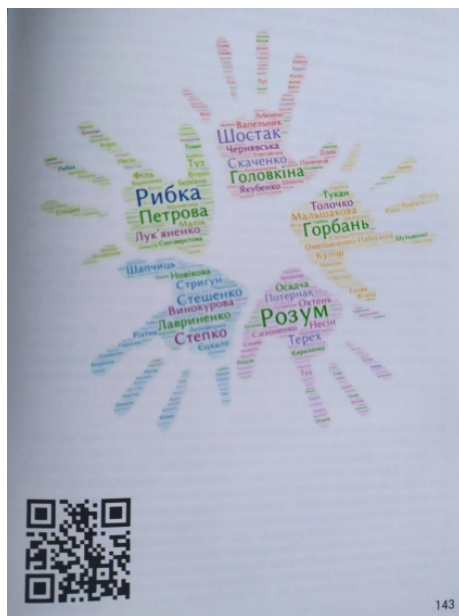


Fig. 1. Our Strength is in the Team Infographics.
Source: Horban & Skachenko, 2019. P. 143

This infographic is added with a QR code that opens a video presentation with photos of the library staff taken during the work process, socio-cultural events, and anniversary events.

CONCLUSIONS.

Anniversary publications on the history of libraries of higher educational institutions have a significant part in historical library science, updating researches of the role and significance of libraries as information and analytical, scientific, cultural and educational centres of universities. Visualisation tools are not just trends of our time, but they also offer real opportunities to attract and retain readers' attention.

The *Scientific Library of the Kyiv National University of Culture and Arts: Times of Change and Augmented Reality* scientific publication, introducing interactive visualisation of content, is an example of up-to-date access to knowledge and opportunities, which is relevant today. In the publication, with the help of infographics (timelines, mind maps, word clouds, interactive posters, block diagrams) and QR codes as markers of augmented reality, various facts and stages of formation are demonstrated clearly, and spheres of activity, developments and achievements of the scientific library are visualised. That is, the visual content of the publication fulfils advertising and communicative functions.

As the presented publication is innovative in design, demonstrating a creative approach to digital technology in publishing, the overview of the practical experience of visualising information on the history of the university libraries can be helpful for other libraries in higher education.

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