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REMOTE WORK FORMAT OF UNIVERSITY LIBRARIES. COMPARATIVE CHARACTERISTIC OF THE SOFTWARE FOR DIGITAL SCIENTIFIC COMMUNICATION

Objective. Research of the experience of mass implementation of the remote format of work in Ukrainian university libraries during the period of isolation caused by the COVID-19 pandemic, analysis of work in various communication systems and programs. Evaluation of the possibility of the most optimal choice of software for remote working. **Methods.** We used the analysis and interpretation of the data of the work of six applications used in organizing remote work in the university library: Hangouts, Zoom, Meet, Microsoft Teams, Skype, and Viber. The combination of analytical and practical research methods made it possible to optimize the choice of software for the remote format of work of university libraries during the isolation period. **Results.** The study of the use efficiency of Hangouts, Zoom, Meet, Microsoft Teams, Skype, Viber, as well as a survey conducted during the pandemic of the opinions of employees of the scientific and technical library of the Dnipro National University of Railway Transport (DNURT) on the experience of remote work, made it possible to identify the main difficulties in organizing remote work of the library. The practice of applying and mastering application programs of digital communication revealed the potential of remote work of the university library and played the role of a catalyst in the development of a remote work format. **Conclusions.** To conduct a high-quality online webinar for free, you need to decide on a service that is time-tested and has a good reputation among users. It will be reliable, provide all the necessary functionality for the implementation of high-quality online content. It is important to read as many feedbacks as possible.

Keywords: Hangouts; Zoom; Meet; Microsoft Teams; Skype; Viber; university library

Introduction

At the end of 2019, beginning of 2020, the whole world faced the unprecedented phenomenon of the coronavirus pandemic (Kashkin, Tishchenko, & Altukhov, 2020). Of course, our planet has faced worldwide epidemics before. But now, in the age of digital technologies, the number and density of the population has increased many times over, and life in many countries is increasingly moving to unprecedented megacities. A full-fledged fight against coronavirus infection in these megacities cannot be imagined without IT technologies. Analyzing the present situation, it is possible to identify three main components of confronting a pandemic:

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- prevention and control;
- detection and monitoring;
- isolation and treatment.

But even in such crisis conditions, life does not stop. During the COVID-19 pandemic, a modern university library cannot and should not stay away from the realias of world and Ukrainian reality.

The main task of the library is access to information. And the university scientific and technical library can and must fulfil this task even in a regime of mass isolation. One of the ways to accomplish this task can be considered remote (distance) work, where the main communications during the library's work are carried out using digital technologies. Until recently, the use of applied communication programs for remote work of university library employees, as well as for organizing conferences, seminars, lectures and other types of scientific communication were not very common in Ukraine. However, the outbreak of the COVID-19 pandemic has made its own adjustments to the situation in the country. In the spring of 2020, a unique experience of mass implementation of the remote format in the activities of many institutions was realized in Ukraine, due to unprecedented external circumstances that required the urgent application of quarantine measures. The need to comply with the isolation regime forced libraries to urgently transfer employees to remote work (in whole or in part) (Kolesnykova, 2020a; Kolesnykova, 2020b).

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Literature analysis. Around the world, academic libraries play an important role in the successful adaptation of universities to distance learning and work caused by the Covid-19 pandemic. Libraries contribute to the accelerated introduction of modern communication tools, software systems and other scientific developments in the field of modern scientific

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communication into the scientific and educational process (Kliushnyk, Kolesnykova, & Shapoval, 2019; Mpungose, 2020). The main factor in the successful transition to distance learning at universities around the world is the availability of both technical potential and the ability to adapt to a virtual format of work (Ruiz-Guerrero, 2020). All structures of the university, including scientific library, should provide assistance in adapting the research and teaching staff to the new working conditions during a pandemic (Neborsky, E. V., Boguslavsky, M. V., Ladyzhets, N. S., Naumova, T. A., & Anisimov, A. E., 2020). The main task of every library chief in times of dramatic uncertainties (for example, the need for social distance in COVID-19) is to organize the work of teleworkers. (Kolesnykova, 2020a; Kolesnykova, 2020b; Kolesnykova, 2018). Perhaps this new reality has advantages and disadvantages compared to traditional ways of working. This study confirms that the virtual format of work requires the selection of optimal software products for various educational and scientific purposes (Kitishat, Al Omar., & Al Momani, 2020; Yudina, Bazyleva, Vakhrameeva, & Fedotova, 2018).

The purpose of the article. Taking into account the existing gaps in library research and the need to select technical means of communication for the library staff, the purpose of the work is to study the experience of the mass implementation of the remote work format in Ukrainian university libraries during the period of isolation caused by the COVID-19 pandemic. Including: 1) analysis of work in various communication systems and programs; 2) assessment of the possibility of the most optimal choice of software for remote work; 3) comparison with the world experience in this area of both university libraries and institutions of higher education.

Methods

In this regard, the study of the efficiency of use and choice of applied programs of digital communication, their adaptation to the working conditions of the university and university libraries, analysis of the results of mass practice of remote work of libraries, which is the purpose of this article, are very relevant today. As part of this purpose, we will analyze and compare the experience of using Zoom, Hangouts, Meet, Microsoft Teams, Skype and Viber programs for remote work of a university library (Yudina, Bazyleva, Vakhrameeva, & Fedotova, 2018). Among the respondents of the Google questionnaire are employees of the scientific and technical library of the Dnipro National University of Railway Transport (DNURT) and universities in Dnipro city.

When choosing the programs for analysis, first of all, we took into account the following parameters:

- price – paid/free;
- maximal number of participants;
- functions;
- test period;
- integrations;
- storage size;
- availability of support service;
- duration of the conference;
- the ability to work from a phone/desktop.

Results and Discussion

Zoom. Zoom has become the undisputed leader in conferencing solutions according to the 2019 Gartner Magic Quadrant. The program has received many positive feedbacks from

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customers, with an average rating of 4.69 out of 5. Zoom provides users with messaging and simplified communication on any device. It re-transmits video conferencing from PC to phone, allows video communication between 100 participants (Zoom Video Communications, 2020).

Pros: there is a free plan, screen sharing, cloud recording, file sending, teamwork features, admin panel, user management, organization branding, SSO, reporting.

Cons: price – the cost of using the service is from $14.99 to $19.99 per month from the organizer. They differ in functionality, the number of participants and organizers, duration of the conference.

Recommended for holding university conferences, seminars and other massive scientific and cultural events in conditions of remote work. In such events, the reliability of the broadcast quality is very important, which corresponds to the declared technical characteristics of the service.

The Zoom program with unlimited conference time was chosen for the webinar held by the DNURT library "How to organize the remote work of the university library staff in the conditions of uncertainty?" (Fig.1) Speaker: Tetiana Kolesnykova, (Director of the Scientific and Technical Library of the Dnipro National University of Railway Transport named after Academician V. Lazaryan, PhD in Social Communications) with up to 100 participants (Kolesnykova, 2020a; Kolesnykova, 2020b).

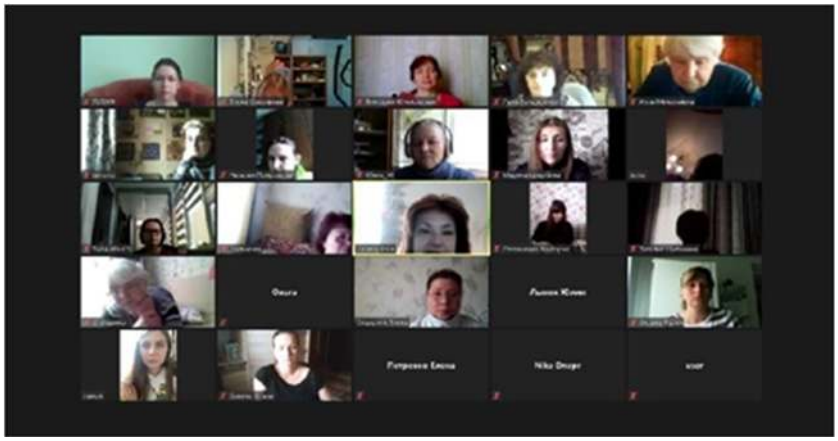

Figure 1. DNURT library conference webinar

We used the free Zoom plan for short-term inside library seminars and conferences up to 40 minutes long. No technical failures were found in the program. During the survey of librarians, 57.1% of respondents gave a rating of 5, and the program took first place in the top rating of programs for remote work.

Google Hangouts. One more favorite service according to the results of the survey of librarians is Google Hangouts. A score of 4 was given by 42.9% of the respondents. Google has offered a simple yet ideal telecommuting solution (Google Hangouts, 2020).

Pros: free tariff, installation on a computer is not obligatory, simple settings, accessible interface, no obligatory conference administrator, unlimited time. It is not just a conferencing tool – it is a web service that runs right from your browser. You just need to log in and contact the desired person. At the same time, the quality of communication is not inferior to even the most popular services, and the set of functions allows you to create group and single calls, transfer files and much more.

Cons: the number of video conference participants is up to 10 people. There were technical failures.

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We recommend it for remote work of methodological councils of the library, the work of departments and individual video calls, as well as a group chat of the entire library.

Google Meet. Another Google product tested for remote library work is Google Meet. (Fig. 2). Google Meet is a good solution for high-quality video meetings with up to 250 users (Start a Google Meet, 2020).

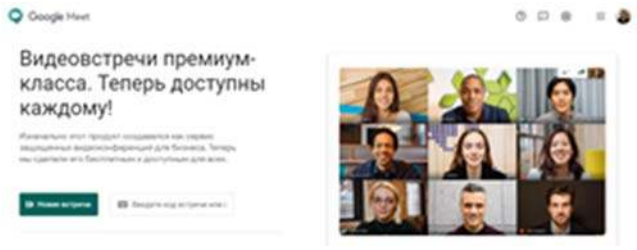

Figure 2. Google Meet conference

Pros:

- Free plan;
- unlimited high quality video meetings;
- easy access via a link – both from a computer and through the Google Meet mobile application;
- the ability of screen share to demonstrate documents, presentations and other content;
- Real-time subtitles based on Google speech recognition technology.

Cons: technical failures in work with a large number of people were observed, subtitles do not always work correctly with Ukrainian and Russian, according to a survey of librarians, the interface is less intuitive than Google Hangouts.

We recommend it for video conferencing with up to 50 people. Google Meet received 3 points in the librarian rating. 39.3% of respondents agree with this.

Microsoft Teams – a new chat-based workspace in Office 365. (Fig. 3).

Figure 3. Platform Microsoft Teams in Office 365

Essentially, it is a single platform that leverages the richness of Office 365 features and capabilities; it is truly a center for teamwork. Word, Excel, PowerPoint, and more are built into Microsoft Teams, so you have all the tools and data at your fingertips (Videoobzor Microsoft Teams, 2020).

Pros: Microsoft Teams not only copies Zoom, but also offers its own unique features, such as a new collective broadcast mode. Here, all participants in the conversation are displayed against a single background, for example, in a hall or cafe. Unlimited video chat time.

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Cons: Quite complicated setup before starting work, video calls up to 49 participants, you need a specialist administrator. 58% of librarians surveyed gave Microsoft Teams a score of 3.

We recommend it for active users of Office 365.

Skype – The program allows you to make conference calls, video calls (up to 50 subscribers, including the initiator), as well as provides text messaging (chat) and file transfer. (Fig. 4).

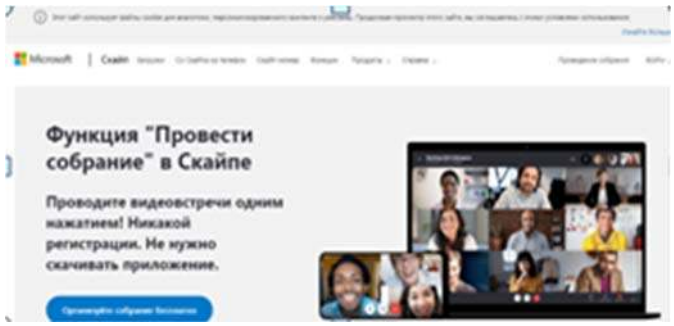

Figure 4. Skype video meetings

It is possible to transmit the image together with the image from the webcam, as well as to create and send video messages to users of the desktop versions of the program (Funkciya "Provesti sobranie" dlya veselyh prazdnikov", 2020)

Pros: Time-tested software. The familiar interface. It can be installed on the phone. Conduct video meetings without registering and downloading applications.

Cons: There were technical problems for over 10 people. The results of the questionnaire survey of librarians showed that 53.6% gave 5 points.

Recommended for organizing remote work in departments and individual work with employees and readers.

Viber – a messenger application that allows you to send messages, make video- and voice VoIP calls over the Internet (Fig. 5).

Figure 5. Video calls using the Viber messenger app

Voice calls between users with Viber installed are free. It is also possible to send text, voice and video messages, documents, images, videos and files, as well as offline (Besplatnye i bezopasnye zvonki, 2020).

Pros: The most popular application among the youth audience of users, a new opportunity. Up to 250 participants can communicate in Viber group chats, and up to 20 people in group calls.

Cons: There were technical difficulties in communicating with more than 10 people. 39.3% of the librarians surveyed gave Viber 5 points.

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WE recommend it for working with the youth audience of the library, for work in departments and individual work with library visitors.

Conclusions

Thus, we present the top programs for remote work based on the survey results of university libraries:

1st place – Zoom;
2nd place – Skype;
3rd place – Viber;
4th place – Hangouts;
5th place – Microsoft Teams;
6th place – Meet.

We hope that this research, carried out in the library environment, will help for more efficient remote work of both the library workers themselves and the work of the university's research and teaching staff. This will ultimately affect the higher quality of distance education in the new reality.

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ДИСТАНЦІЙНИЙ ФОРМАТ РОБОТИ УНІВЕРСИТЕТСЬКИХ БІБЛІОТЕК. ПОРІВНЯЛЬНА ХАРАКТЕРИСТИКА ПРОГРАМНИХ ЗАСОБІВ ЦИФРОВОЇ НАУКОВОЇ КОМУНІКАЦІЇ

Мета. Вивчення досвіду масового впровадження дистанційного формату роботи в українських університетських бібліотеках під час режиму ізоляції, що викликала пандемія COVID-19, аналіз роботи в різних комунікативних системах і програмах. Оцінка можливості найбільш оптимального вибору програмного забезпечення для дистанційної роботи. **Методика**. У дослідженні використані аналіз і інтерпретація даних роботи шести прикладних програм, застосування яких допомогає організувати дистанційну роботу в університетській бібліотеці: Hangouts, Zoom, Meet, Microsoft Teams, Skype, Viber. Поєднання аналітичного та практичного методів дозволив оптимізувати вибір програмного забезпечення

для дистанційного формату роботи університетських бібліотек в період режиму ізоляції. **Результати**. Вивчення досліджень ефективності застосування прикладних програм Hangouts, Zoom, Meet, Microsoft Teams, Skype, Viber, а також опитування думок співробітників бібліотеки ДНУЗТ, що до отриманого досвіду дистанційної роботи, яке було проведено в період пандемії, дозволило виявити основні труднощі в організації дистанційної роботи бібліотеки. Отримана практика застосування та освоєння прикладних програм цифрової комунікації розкрила потенціал дистанційної роботи університетської бібліотеки і зіграла роль каталізатора в розвитку дистанційного формату роботи. **Висновки**. Щоб безкоштовно провести якісний онлайн-вебінар, треба визначитися з сервісом, який перевірений часом і має хорошу репутацію серед користувачів. Він буде відрізнятися надійністю, надавати весь необхідний функціонал для здійснення якісного онлайн-контенту. Важливо ознайомитися з якомога більшою кількістю відгуків.

Ключові слова: Hangouts; Zoom; Meet; Microsoft Teams; Skype; Viber

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