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ACTUAL PRIORITIES OF MODERN SCIENCE, EDUCATION AND PRACTICE

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**DISTANCE LEARNING DURING ONE MONTH
(FEBRUARY, 24 – MARCH, 25) OF 2019-2022 YEARS
DURING COVID-19 PERIOD AND WAR OF RUSSIA
WITH UKRAINE**

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The COVID-19 pandemic, is an ongoing global pandemic of coronavirus disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [1]. The World Health Organization (WHO) declared a Public Health Emergency of International Concern on 30 January 2020 and a pandemic on 11 March 2020.

The Russian-Ukrainian war is a war between Russia (along with pro-Russian separatist forces) and Ukraine [2]. It began in February 2014 after the Ukrainian Revolution of Dignity with Russia's annexation of Crimea and the part of Donbas area. Following a Russian military build-up on the Russia-Ukraine border from late 2021, and significant expansion of the conflict, when Russia launched a full-scale invasion of Ukraine on 24th February 2022.

All of the above tragedies have had a significant impact on student learning. The COVID-19 pandemic widely introduced distance learning into universities and schools. And now the Russian bombing has again made it impossible to study offline. Therefore, it was decided to look at how these two processes affected the online learning of students in 2019-2022, comparing in these years the last month, when Russia attacked the entire territory of Ukraine (February 24 - March 25).

The analyzed data are statistics of the YouTube channel viewings of Oleksii Antypenko, Ukraine, demonstrating practical classes of Organic and Bioorganic Chemistry with Ukrainian, English and Russian subtitles [3].

As a result, when comparing the geography of the views, there were found 34 countries (UA, PH, IN, RU, KZ, BG, PK, SA, KE, ID, US, MD, LK, MN, TR, RS, EG, BD, RO, PE, BH, KG, LT, PA, PL, SD, SG, UZ, BY, CZ, IQ, NG, VN, ZA), who watched the videos during this period. And Figures 1-3 were built.

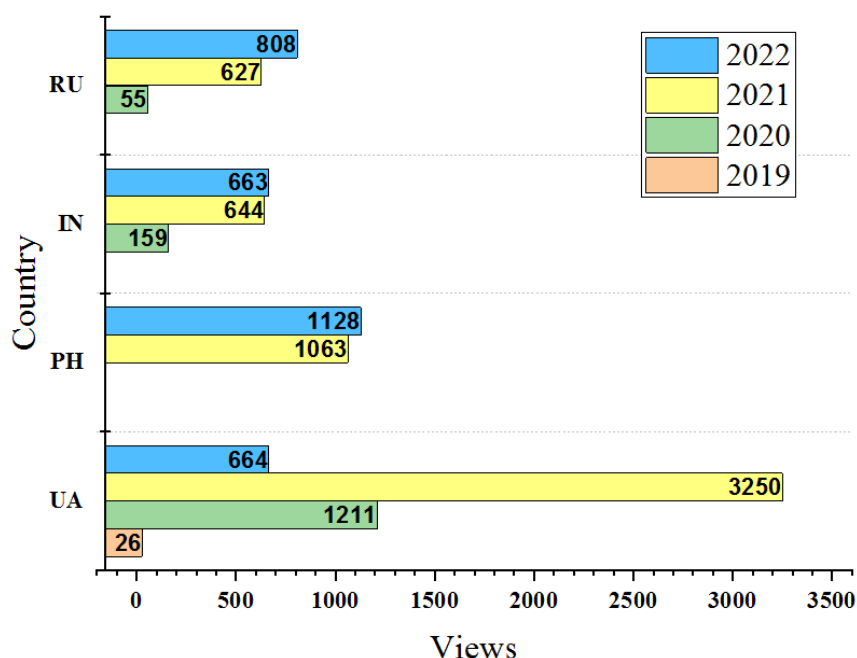


Fig. 1. Geography with the most video views.

As can be seen from Fig. 1, Ukraine is among the countries with the most views. The first videos were presented in 2019, and at that time only 23 views were shown. But the quarantine of COVID-19 shows a rapid increase in distance learning from 1211 to 3250 video views. And a sharp decline to 664 times - during the 2022 war.

Interestingly, in the Philippines, this channel is also popular since 2021, and in 2022 the views even increased from 1063 to 1128 times.

It is also reassuring that students from India who studied at Zaporizhzhia State Medical University and were safely evacuated to their homeland at the beginning of the war watched this channel at the same level in 2021 and 2022.

In addition, students from the Russian Federation had almost the same number of views as the Indians in 2021, and even increased the number of views during the war in 2022 from 627 to 808, despite all the prohibitions of YouTube, Facebook, Instagram, etc. in Russia. So, those who want to learn, or those who want to see news from a variety of sources, can get information no matter what. At least for the discussed period.

The next 6 countries (Indonesia, Kenya, South Africa, Pakistan, Bulgaria and Kazakhstan) had views above 121 (Fig. 2). Among which Kazakhstan had the maximum number of views in 2021 - 390. If we compare the data for 2022 with the previous year, then a rapid drop in views was observed in all these countries except Indonesia. So it is possible that among the audience were students who studied in Ukraine, and perhaps not all of them were evacuated or even decided to stay in Ukraine.

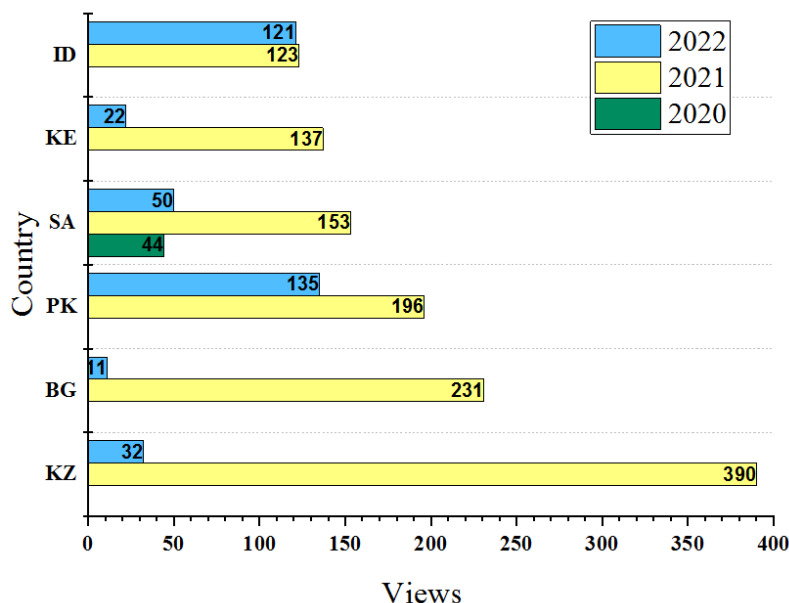


Fig. 2. Geography with a moderate number of video views.

In the following 24 countries less than 100 views were found (Fig. 3). Among them, the United States had its highest number during COVID-19 in 2021, which halved in the war month of 2022 (97 vs. 47). Also in the Republic of Serbia the views decreased 3 times (32 vs. 11) in the latest month of this year.

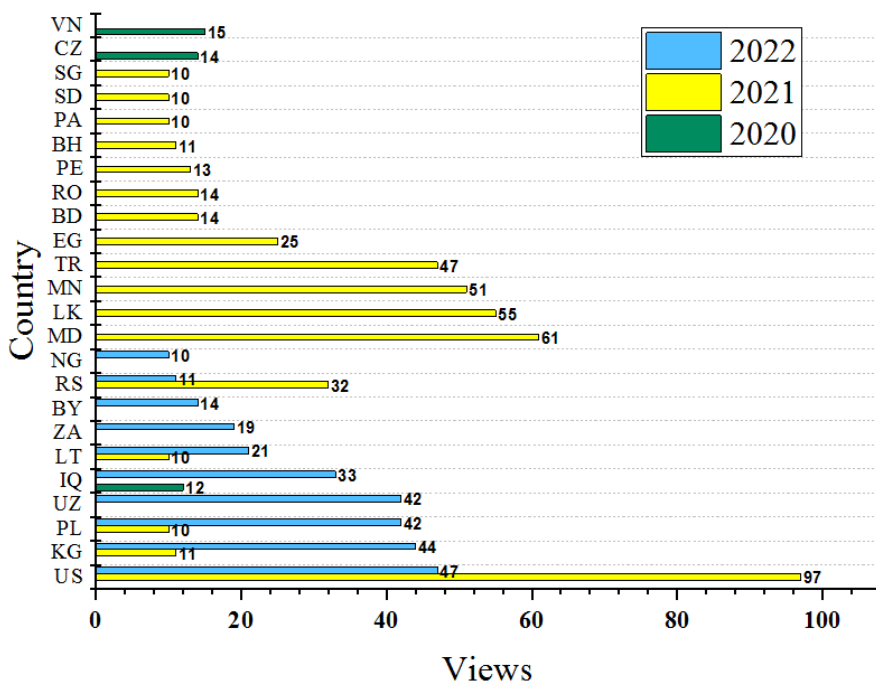


Fig. 3. Geography with the fewest video views.

Interestingly, in Latvia, Kyrgyzstan and Poland, viewing even has increased by 2-4 times during the russian-Ukrainian war. And Nigeria, Belarus, South Africa and Uzbekistan began watching educational content only in 2022, and Iraq continued after a 1-year hiatus. However, 14 countries (MD, LK, MN, TR, EG, BD, RO, PE, BH, PA, SD, SG, CZ, VN) have disappeared in 2022 for unknown reasons.

The type of device that was used for watching videos was also monitored (Fig. 4).

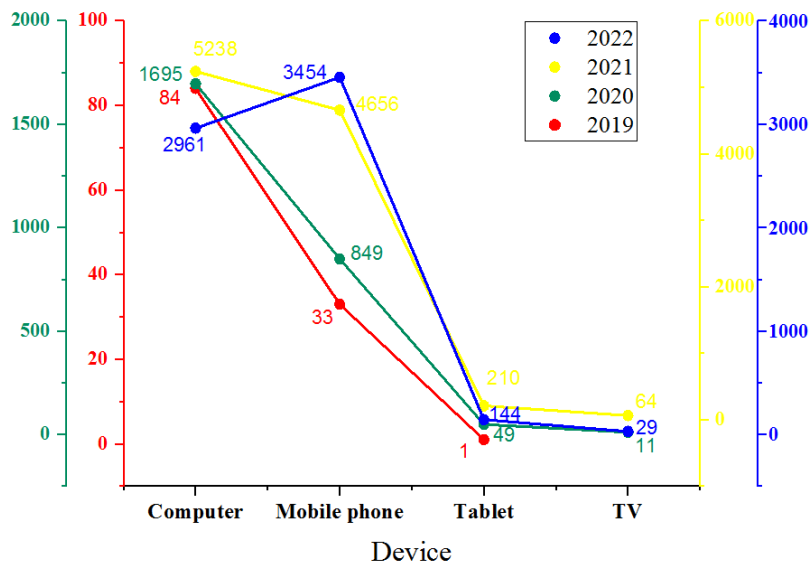


Fig. 4. Comparison of the use of different devices.

As shown in Figure 4, the desktop computer remained the main source of video viewing from 2019 to 2021. But in 2021, the situation began to change with a small difference between using a mobile phone - 4656 times and 5238 times a computer. During the war in the spring of 2022, the number of uses decreased, but mobile phones were preferred almost 500 times. In addition, it is interesting that the tablets were used considerably less, almost like a TV.

Given the number of hours spent on study, Ukraine ranks first, with a big difference from the data of 2021 (71.1 hours), among the data from the countries with the highest number of views (Fig. 5).

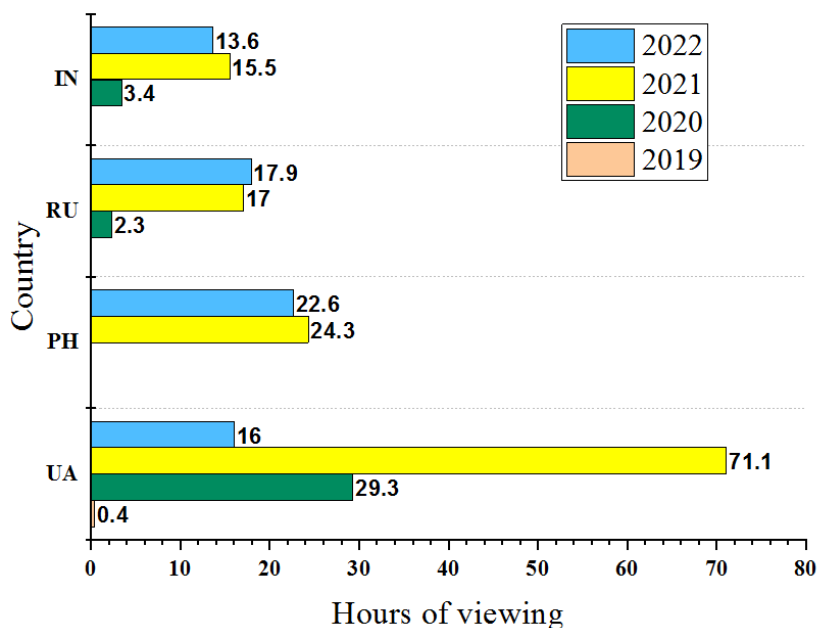


Fig. 5. Hours of viewing in the countries with the most views.

Unfortunately, only 16 hours were spent by Ukrainians watching educational content during the war. And this is just one subject among many in just one month of the war. It is difficult to imagine the negative impact of the russian invasion on the psychological and physical condition of all students who stayed or left Ukraine. The duration of viewing from the Philippines, India and russia remained relatively at the level of COVID-19 in 2021. The first two countries watched about 2 hours less, and the last - about 1 hour more.

The following Figure 6 shows the most popular external sources for viewing the discussed YouTube channel.

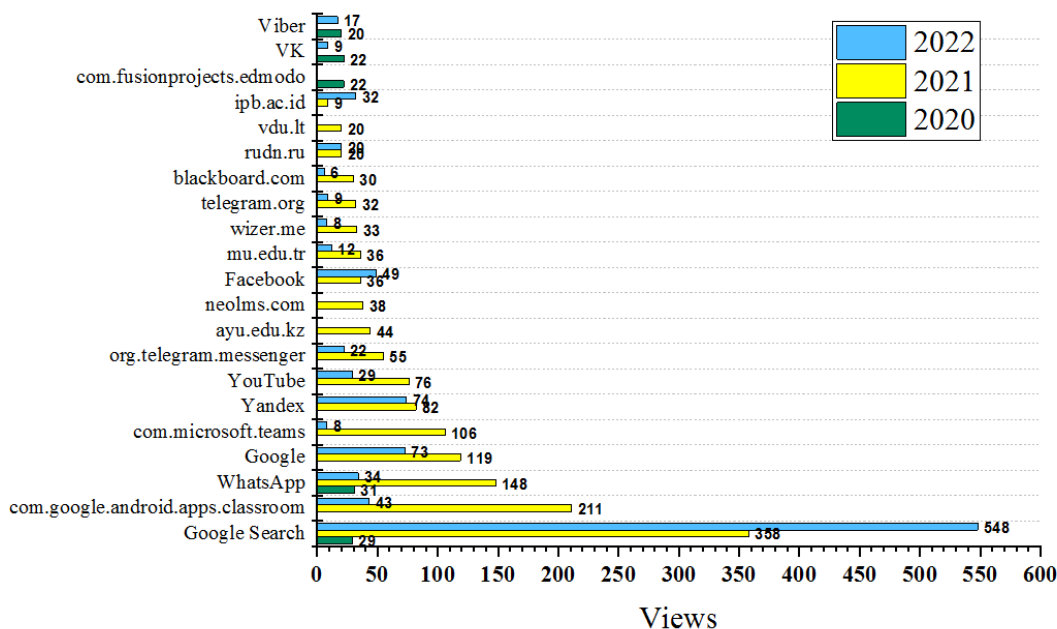


Fig. 6. External view sources with more than 20 views.

Google search and WhatsApp were the top ones in 2020. And in 2021 and 2022, the first one gained rapid growth in views along with Google android Classroom. All other presented applications or sites were mainly used in 2021, with a significant decrease in 2022. The exceptions are Yandex, which is used in Russia; Facebook, and Bogor Agricultural Institute, Indonesia, which views only increased.

Summing up, we can say that distance learning on a smartphone is now a new reality of university education. In Ukraine, which is still under russian attack, the educational process is significantly slowing down. In addition, it is shown that russians are actively using Ukrainian educational content on YouTube.

We really believe in the fastest victory of Ukraine and its future prosperity. Modern free and strong-willed students are among those who will help rebuild everything in our peaceful country with the help of the whole healthy sane world!

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