

OVERVIEW OF THE DIGITAL TEACHING MATERIALS IN HEALTH EDUCATION RESOURCES DURING COVID-19 PANDEMIC

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Abstract:

The Covid-19 pandemic has drawn attention to the importance of digital education. The need for development and transformation in this field was also justified by the European Commission's Digital Education Action Plan 2020 (2021-2027) (European Commission, 2020b; European Union, 2020). European Commission survey, one in five young people do not have basic digital skills (Adorján, 2020). In this digital age, high quality training can only be achieved by using state-of-the-art technology for education and training purposes. To make this a reality, we have to make up for any infrastructural shortcomings (European Commission, 2020a; European Commission, 2020b; European Commission, 2020c; European Union, 2020). In addition to the lack of resources, the objectives of the Action Plan and practical experience both show that the digital skills and competencies of teachers and learners also need to be improved. The development of health education cannot stop with the shift to digital education, but the use and application of digital teaching materials is a challenge for teachers.

Our study is a small-item qualitative research, including a documentary analysis of all WHO options and Hungarian HNPC options. Within the framework of the descriptive statistical method, we calculated frequencies and standard deviations. The aim of which

is to obtain an overview of this area at the time of the covid, so there is a non-representative survey. Our research question: how are digital aids available at the beginning and in the middle of the Covid epidemic? The aim of our study is to review and describe the content and applicability of digital health education materials available in the autumn of 2020 and in August 2021 in English and in Hungarian language.

Keywords: *Digital material, health education, digital education, pandemic, health*

Introduction

At the end of 2019, the World Health Organization declared the Covid-19 disease caused by the SARS-CoV-2 virus a pandemic. Due to this situation, they proposed working from home (home office), social distancing and digital education in order to protect people's health and to avoid overloading the health care system (Alarabi, Tairab, Rabbani, & Hamad, 2022; Schulz & Nakamoto, 2005; Végh, Soltész-Várhelyi & Pusztafalvi, 2021; Cseh, Zorga, Sipos, Fináncz, & Csimá, 2021; Razali, Sulaiman, & Ayub, 2022).

At the beginning of 2020, the world was in a state of emergency, and in spring the Hungarian government declared a state of emergency for the entire territory of the country (Hu, Tucker, Wu, & Yang, 2020; Végh et al, 2021; Cseh et al, 2021, Salleh, Jawawi, & Teo, 2022; Razali et al, 2022). The regulations changed continuously in response to the rise and fall of morbidity and mortality numbers, but the hygiene rules formulated to avoid infection remained in place even after the other restrictions were lifted or eased. People were asked to pay more attention to strengthening their immune system, to use a 60% hand sanitizer, to use a handkerchief when sneezing and coughing, to wash their hands regularly, to use other forms of greeting instead of shaking hands, and to use a face mask, although the regulations of when and where to wear them has changed many times (Papp-Zipernovszky, Náfrádi, Schulz & Csabai, 2016; Hu et al, 2020).

About Digital Education

This period of constant change is taxing for people's physical and mental health, so promoting health education is also essential. The need for prevention, appropriate lifestyle changes, and screening is undeniable, as illustrated by the work of Szabó, Kíves, Máté, Polyák, and Pusztafalvi (2020), which examines the prominent role of health behaviors in patients diagnosed with prostate cancer.

Among other hypotheses, the relationship between health status and physical activity, and good eating habits in patients with prostate cancer, and their hypothesis were affirmed (Tarkó & Benkő, 2016).

Considering all of this, it is clear that dealing with health behavior is essential and studies indicate that health literacy plays a crucial role here. The importance of health literacy (HL) is supported by studies and surveys conducted by health professionals. The results indicate that due to low health education, patients do not follow health professionals' instructions properly, their communication with professionals is ineffective, participation in preventive activities is low and adverse health behaviors are more common (Ratzan & Parker 2000; Papp-Zipernovszky et al, 2016; Schulz & Nakamoto, 2005; Végh & Bíró, 2018; Csimá et al, 2018).

A number of initiatives have been taken to define HL, but Sorensen's definition has become the most widely accepted. As quoted in Végh and Bíró (2018), "Health literacy is linked to literacy and entails people's knowledge, motivation and competences to access, understand, appraise, and apply health information in order to make judgments and take decisions in everyday life concerning healthcare, disease prevention and health promotion to maintain or improve quality of life during the life course (Sørensen, Broucke, Gerardine, Jürgen, Zofia, & Helmut, 2012, p. 3.; Végh & Bíró, 2018; Csimá et al, 2018).

The pandemic did not lessen the health problems that the Hungarian population had previously struggled with, and as a result, the emphasis on health promotion is as important as ever. The mortality data of the population is particularly alarming, as the mortality of both Hungarian women and Hungarian men was higher in 2019 compared to the numbers of the other Visegrád Group countries (Varga, Lászlóné Kerekes & Falus, 2020).

Clearly, the pandemic and the changes in our everyday life have an impact on the whole human body; they take their toll on us both physically and mentally. The thoughts and advice expressed by UNICEF on the Covid-19 epidemic also imply that our mental health can also be affected. According to the literature, the life situation caused by the epidemic can lead to anxiety, isolation and frustration in adolescents, who are at an already critical stage in life (UNICEF, 2020; Cseh, et al, 2021). The WHO (2017) estimates that more than 300 million people suffer from depression, representing nearly 4.4% of the world's population (WHO, 2017).

A number of campaigns and regulations have been put in place to address the health problems identified in the population; yet, according to the WHO, the number of people with mental disorders in low-income countries is rising globally. Furthermore, depression and anxiety are exacerbated by poverty, unemployment, alcohol and drug use (WHO, 2017).

All of these are problems that could be prevented by increasing health literacy with the help of using digital supplementary materials. As with mental health problems, healthy literacy can play a significant role in the prevention of "diseases that cause loss of life due to premature death".³⁵ According to Vitrai and Bakacs (2018), within the framework of the Global Burden of Disease study project, an already existing database was updated and was used to estimate years of life lost (YLL) due to "premature" deaths.

Illnesses and injuries that cause the greatest years of life lost due to "premature" deaths show the severity of the problem the most. In 2017, heart failure was ranked first in the Visegrad Group countries and Austria, followed by stroke, lung cancer and colorectal cancer. Only in Hungary, Alzheimer's disease also ranked high. According to Vitrai and Bakacs (2018), in 2017, non-communicable diseases accounted for more than 70% of deaths globally.

Comparing the data from 2017 with the results from 1990, there has been a decrease in the number of TBC-induced diseases, intestinal and respiratory infections, as well as maternal and neonatal deaths, but an increase in the number of lifetime losses due to malignant tumors and cardiovascular diseases. The literature concludes that prevention of health loss can be achieved by reducing physiological, behavioral, and environmental risks. The biggest risk factors for health loss in Hungary are smoking, high LDL cholest-

terol, dietary habits, excessive alcohol consumption and a high body mass index, all of which can be prevented by increasing health literacy (UNICEF, 2020).

According to the Ottawa Charter (1986), “Health promotion is the process of enabling people to increase control over, and to improve, their health” (Benkő, 2009, p. 25) According to Aristotle, “health is not a single act, but the totality of our habits”, which perfectly sums up how health promotion approaches personal health and the fact that cultivating a healthy lifestyle is done through habits we enjoy (Tarkó & Benkő, 2016, p. 1). The problems observed in the health status of the population and the topical issues caused by the epidemiological situation justify the need for health development, thus; also the need for health education.

Digital Literacy and Health

It was the epidemiological situation necessitated the use of digital education and digital information, thus encouraging all actors in the field to change and to innovate. Within the framework of digital education, there was an opportunity to place more emphasis on health education, mainly pertaining to the mediation of hygiene rules and the dissemination of general health promotion knowledge. During this difficult period, a number of challenges had to be tackled from both a pedagogical and an IT perspective (Adorján, 2020; European Commission, 2019d; Razali et al, 2022).

While one study conducted by Végh, Soltész-Várhelyi and Pusztafalvi (2021) examined what kind of teacher attitude is the most favourable during the pandemic, their other study from the same year tried to map the level of stress experienced by primary schools teachers due to the switch to online education during the first wave of the pandemic and their attitudes towards digital education (Végh et al, 2021; Sørensen et al, 2012, Salleh et al, 2022).

The emerging pandemic posed unprecedented challenges in Hungary, just like in every country all over the world (Alarabi et al, 2022). The stress level experienced by teachers in general is already quite high, but according to research, the transfer of practical subjects to the online space has resulted in even more difficulties and stress. Biology teachers, art teachers, and language teachers experienced more stress than other educa-

tors. Teachers of science subjects need more demonstration tools and sometimes the tasks are more practical than in other subjects (Végh et al, 2021).

In this extremely stressful situation, despite the restrictions and limitations caused by the pandemic, it is necessary to pass on knowledge related to biology and health science, as justified by the health status and health behavior of the Hungarian population. The disease burden in Hungary is not only caused by the epidemic, but also by the financial implications of other, non-communicable diseases, which are characteristically present in the population. Also, the development and treatment of diseases places an increased burden on health policy makers, as well (Szabó et al, 2021).

Huawei Technologies Hungary, Technokrata (2020) conducted a survey at the beginning of the pandemic, in which a total of 399 people aged 18-38 participated. The majority of the respondents lived in a county seat (52.2%), the capital (21.6%) or a village (15.3%). When asked what they fear most about online education, most were fearful of “new assessment methods” (40.1%), 34.8% were worried that the standard of education would not be the same, 34.3% were anxious that their internet connection would crash during an online exam, and several participants feared that they might become isolated from others due to a lack of face-to-face encounters (30.6%). 17.8% of respondents were not perturbed by anything and lastly, 5.5% mentioned being nervous about leaving the microphone or the camera on accidentally. The survey was also seeking answers to the question of what is most enjoyable about online education. Most participants (55.4%) said it was comfort, so that “I can listen to lectures in my pajamas as well”, 44.4% answered that they do not have to use public transport and 27.6% said they “finally felt like living in the 21st century” thanks to digital education.

5.5% of respondents indicated that they “suffer from learning at home and do not enjoy anything about it”. There was also a question about what positive aspects of online education would the respondents be happy to see in education in the future, as well. 50.6% indicated that they would appreciate the opportunity of joining a class online if they cannot be physically present. According to 43.1% of the participants, they would make the educational material more practical and 43.1% also indicated that digital skills are very important. Only 5.3% answered that they do not need a change in education et all (Technokrata, 2020, Dinnyés & Pusztalvi, 2022).

According to UNESCO data, attendance based education was suspended in 188 countries in the spring of 2020, just like in Hungary, where schools had to switch from traditional education to digital education overnight (Adorján, 2020; Józsa, Karáné Miklós, Józsa, 2021).

Due the pressing need to implement teleworking, all participants in education switched to online education, taking on all the challenges of the task: the lack of of proper tools and their lack of experience in the application of these tools for learning purposes. The Hungarian government adopted Hungary's Digital Education Strategy in 2016, but the sudden switch to online education during the epidemic shed light on the negative and positive aspects of online teaching in Hungary. As in traditional education, the role of the educator is important in online education, who is present as a facilitator in the learning process (Józsa et al, 2021).

Educators had mixed feelings and experiences about digital education during the pandemic: there were those who talked about the lack of clear separation between their private and professional lives, with several teachers reporting increased workloads and low success rates (Józsa et al, 2021). As a positive aspect of digital education, it was emphasized that the teacher-student interaction increased, it was possible to use various online platforms, and it was also possible to watch videos and to use workbooks online (Józsa et al, 2021, Dinnyés & Pusztafalvi, 2022).

Health Information in The Digital Space

The development of health education had to continue despite the setbacks the switch to digital education caused, but the use and application of digital teaching materials posed a considerable challenge for educators. The question may arise as to whether the appropriate supplementary materials were available in English and / or Hungarian. The World Health Organization (WHO) provided a number of supplementary teaching materials on their website, video channel and social media interface in both English and Hungarian (WHO, 2022; WHO, 2020a, WHO, 2020b, WHO, 2020c, Dinnyés & Pusztafalvi, 2022).

In most cases, the teaching materials were published in English, but the National Center for Public Health did not provide a Hungarian version of these documents or videos.

A part of health education is the prevention of mental and physical illnesses and the transmission of information on protective measures related to the epidemic, whether it is prevention related to hygiene rules or infection transmission prevention. Overall, it is about more than improving physical health. According to the holistic concept of health, which encompasses a multidimensional approach towards this concept, it is necessary to address the physical, mental, emotional, spiritual, social and societal dimensions of human health simultaneously, especially in the new living situation brought about by the pandemic (Naidoo & Wills, 1999).

In schools, health promotion and health education are currently covered in a subject called Health Science or Biology. From the 19th century onwards, health education has been a compulsory school subject taught to both students and their parents in collaboration with doctors and with the help of the teachers. From the late 1800s, it was mandatory to employ a school doctor and a health teacher in all institutions. Remuneration was borne by the state and the maintainer of the institution. The amount of material to be covered and the topics that would receive more emphasis were always determined by the textbook and influenced by topical health problems (Pusztafalvi, 2011).

Nowadays, school health promotion “is a process that affects all students, school staff, all subjects, decisions, investments, and program design. Optimally, the whole community of the school (all students, the entire faculty, as well as the staff, parents and the school environment) participates in health promotion activities that are integrated into the everyday life of the school. The basic document of school health promotion is the health promotion program prepared as part of the pedagogical program” (Nemzeti Népegészségügyi Központ, 2020). The Comprehensive School Health Development Program 2014-2020 defined the four basic tasks of health promotion: 1) the implementation of healthy nutrition, 2) daily physical exercise, 3) mental health promotion and helping children become mature personalities, 4) the acquisition of a wide range of health skills, in other words, the promotion of health education (Nemzeti Népegészségügyi Központ, 2020). Even during the pandemic, the promotion of health education must continue, which is why we examined the international and Hungarian digital, supplementary teaching materials that help the work of teachers (Deutsch, Betlehem, Bánfai, Jeges, Lampek, Domina Tancsics & Csimá, 2019, Dinnyés & Pusztafalvi, 2022).

Purpose of the study and collection of data

Our aim was to map the digital teaching materials in the field of health education or lack there of, highlighting any issues and avenues for improvement. Our goal was to compare the quality and quantity of international and Hungarian digital supplementary materials. We conducted our first exploratory study in the fall of 2020 (October – November 2020) and then compared these findings with the digital documents and video clips available at the end of summer in 2021 (August 2021). Based on the literature review, the following research question was formulated: **how are digital aids available at the beginning and in the middle of the Covid epidemic? How and how could these available resources be incorporated into practice? How and how were these resources made available?**

Sample and method

In the course of our qualitative study, we analyzed the videos and documents available on the online interface of the World Health Organization (WHO) and the Hungarian National Public Health Centre (NPHC). We chose professionally and internationally credible sources. We first examined whether the accessibility and the quantity of educational materials had changed between the autumn of 2020 and early August 2021, in the early-to-mid stages of the pandemic. The number of materials available from the WHO and the NPHC was summarized in a table, and we also examined the types of materials available as well as the regularity with which they were updated and whether users had the option to download them or not.

Our study is a **small-item qualitative** research, including a documentary analysis of all WHO options and Hungarian HNPC options. During the content analysis, we took every opportunity to examine the content of websites, videos, posters and available content. Within the framework of the descriptive statistical method, we calculated frequencies and standard deviations. For data processing, we used Microsoft Word and Excel software packages. **Our study is a non-representative survey**, the aim of which is to obtain an overview of this area at the time of the covid.

Results

First, let us take a look at an international website, the English-language webpage of the World Health Organization (WHO). Here, we looked at the number of teaching materials available in the fall of 2020 and in August 2021. The World Health Organization (WHO) offers several options for finding information: their own website, their Facebook Watch interface and their video-sharing portal. We looked at the “health topics” tab on the website, since that is where information on health education and the epidemic is available. In October 2020, materials pertaining to a total of 177 different topics were available on the website to keep the general public well-informed, but can also be used as teaching resources. In October 2020, 59 videos were uploaded on the Facebook Watch interface, mainly interviews and spots, which can easily be integrated into the curriculum as supplementary materials. On the video-sharing interface (Youtube), 5-8 videos were uploaded daily. These were either informative videos, interviews, or animated clips with explanations.

In the second stage of our study, in August 2021, 184 topics were available on the WHO website under “health topics”; considerably more than the previous time. A total of 64 videos were uploaded to Facebook Watch in August 2021 in a single month. These videos, as in the fall of 2020, also contain up-to-date information for all ages and interests. As before, several videos were uploaded to Youtube every day, with very high views. To give a few examples, we would like to describe some of the English-language short video clips available from the WHO. The first one is an instructional video on how to wear a mask. The second is a 1 minute 52 second video entitled "When and how children should wear a mask during COVID-19", which was uploaded on 13 October 2020. It had 87,000 views in August 2021 and by December 2021, it had been viewed by 27 million people (Adorján, 2020, Dinnyés & Pusztalvi, 2022).

A short, 7-second video showing different ways of greeting each other instead of shaking hands was uploaded on 22 October 2020 and had already been watched by 39.5 million people at the time of the first stage of our study (European Commission, 2020a).

We also examined the resources offered by the National Public Health Center in October 2020 and August 2021. They provide information on the NPHC website and video sharing interface (Youtube) operated by the Hungarian government. The initially low

viewcount of the uploaded videos did not increase significantly by the second stage of our study. In November 2020, users were able to find a website with a tender mark on the NPHC website. During the first stage of our study, on 16 November 2020, under the Health Promotion tab, the most recent article was uploaded several months ago (19 August 2020) on the topic of cultivating a school garden as a health-promoting activity. Prior to that, a newsletter on smoking prevention was published on 4 February 2020. The information on the epidemic consisted of statistics on the main page (at that time there were messages displayed encouraging people to take the flu vaccine).

In the second stage of our investigation, on 28 August 2021, we found that the NPHC website had been completely refurbished from the outside, yet the amount of uploaded materials had not changed. The tender mark has disappeared from the website and other types of green have been used. On the renewed website, health promotion resources are available under the Professional Background Materials tab, but even there we did not find any materials suitable for the general public: there is a document titled “Prevention programs for school-age children” and a “Handbook for evaluating the planning of drug prevention interventions”. On the NPHC website, in the autumn of 2020, by clicking on the “News / Downloadable informational materials” button, we could find resources that would help everyday people, as well. There are many informative and interesting materials on display, but the interface and the upload dates are not recent here either.

As for the “Downloadable Informational materials” section, the last upload is on 11 November 2019, titled “12 Beneficial Steps - Facts About Walking”. During the second stage, on 28 August 2021, the mostly vaccine-related “Coronavirus leaflets” made up the vast majority of documents on the revamped-looking website. Examining the Youtube interface (“Egészség pont hu” channel), the latest video was uploaded a year ago in November 2020, titled “Complex Health Development Program in Amsterdam”. This 7-minute video had 76 views on 16 November 2020 and 97 views on 28 August 2021, so the view count increased only by 21 views in one year. The number of views is low, the uploaded resources have not been updated, and no educational materials have been published to help teachers with the current challenges in digital education, such as the Covid pandemic.

Table 1. Summary table of the WHO and NPHC websites as found in the autumn of 2020 and August 2021 (In Dinnyés & Pusztafalvi, 2022).

	NPHC	WHO
Tools	Website, video sharing portal Website renewed in 2021, but incomplete	Social media (WHO Facebook): videos, posts Video sharing Portal (Youtube) Website
View count	~100	~27 million
Supplementary teaching materials	2020:"Downloadable informational materials" 2021:Epidemiological information	Their number is constantly growing: Short videos (7 sec - 10 min) Informational materials (interviews, spots)
Update/frequency	NPHC website: 2021: topics related to the pandemic Youtube: last uploaded 2 years ago	Fall 2020 - August 2021 Watch interface: daily Facebook: daily new video post Youtube: daily stream, daily animated, interesting video for all ages
Download option	2020: available 2021: deleted files (no download available)	available continuously

Conclusion

In the interests of health promotion, the World Health Organization (WHO) continues to place great emphasis on the development of up-to-date digital learning materials, which they make publicly available on their website and on their social media platforms (European Commission, 2019a; European Commission, 2019b; European Commission, 2020a, European Commission, 2020b; European Commission, 2020c). WHO health education materials are up-to-date, informative and interesting, easy to understand, but their translation from English into Hungarian is incomplete, so they are not easy to make use of in Hungarian health education. Videos on almost all areas of health promotion can be found on the Internet, but to no avail if they are not available in Hungarian. The resources available on the NPHC website need to be updated, and some of the flyers and documents have only been updated over a year ago. It is also true that it does not contain current hygiene recommendations and pre-pandemic information, which also reduces the success rate of Covid prevention.

All things considered, the field we investigated is in need of significant improvement in terms of Hungarian-language materials and should be given more emphasis, as the constant and rapid changes in everyday life require the possession of appropriate and up-to-date information. The role of prevention is crucial in educating healthy citizens and reducing the causes of preventable deaths.

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