

Digitization and its dimensions in a social context

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Abstract:

This article shows different aspects of digitization related to digital literacy and skills, as well as the state of digital education in the context of Covid-19 situation in national context. The article is aimed at presenting how the characteristics of the educational system change with the progressive inclusion of digitization, as well as how people's attitudes towards the overall environment are changing. The main methods used are a questionnaire conducted with 1018 people, which describe the availability of digital skills and assesses various aspects of the digitization of society, including the quality of distance learning. The second method is quantitative - 2 focus groups conducted with students from SWU in 2021; as the main topic is distance education in the conditions of Covid-19, its positive and negative sides. The main conclusions of the article are that digitization has entered all areas of society and is an important and even dominant principle of social existence and development. Therefore, the only way in which society can exist is to stimulate the conditions of digitization, to develop specific measures to increase people's digital literacy and digital skills, as well as to develop their critical thinking towards information and various sources and networks.

Keywords: digitization, digital skills, education system, Covid-19

1. INTRODUCTION

Digitization is of great importance in modern society. In fact, it has become an integral part of modern life. Digital skills are very important for professional and personal success [1], because they enter into various aspects of information, achievement, science and digital citizenship [2]. When studying digital skills, some authors focus mainly on technical skills [3]. Other authors emphasize that digital skills are a combination of skills needed to use the Internet, as well as skills for understanding and critically interpreting online content [4]. According to other authors, digital skills should also include communication and socio-emotional skills needed in the use of social media [5]. This article examines the different aspects of digitization related to digital skills and their measurement, as well as the state of digital learning in the context of the Covid-19 situation.

The main research questions are: To what extent has digitization entered Bulgarian society? How prepared are people to use different digital devices? What digital skills do modern Bulgarians have? What is the relationship between digitization and online learning and how effective is it? It turns out that it is essential to improve and enhance the characteristics of the technological environment, as well as to implement various measures that stimulate the use of digital characteristics in professional life and the requirements of employers, as well as activating the communities themselves in search of mutual approaches and resources.

2. METHODOLOGY

Questionnaire

The article uses two main methods that are relevant in terms of objectives and research issues.

The first method that was implemented was a questionnaire with 1018 people, which was aimed at different social groups, in order to

study their digital skills and attitudes towards digitization.

We present a short description of the sample:

By gender, the distribution was:

- Men: 28.5%
- Women: 71.3%

By Age, the following groups of respondents were included in the sample:

- 18-29 years: 37.9%
- 30-39 years: 24.6%
- 40-49 years: 18.7%
- 50-59 years: 8.4%
- 60 +: 10.4%

By Education, the distribution was:

- Up to secondary education: 1.4%
- Secondary education: 35.6%
- Higher education: 41.1%
- Ph.D. degree: 22.0%

By Location the distribution was:

- Respondents living in the capital: 38.1%
- Respondents living in a district town: 26.3%
- Respondents living in a small town: 27.1%
- Respondents living in rural areas: 8.4%

When forming the sample, the aim was to present people of different ages, with different levels of education, from different settlements and genders. To track the characteristics of digital literacy and digital skills in different age, educational, gender distributions; and also to show whether age, gender, location and education affect digital literacy, how the latter is changing. Measuring digital skills [6] is essential for researchers and the ways in which they apply different approaches is becoming an important factor in assessing the modern personality.

Focus groups

The second method used was focus group. Two online focus groups were conducted in May 2021 in:

- specialty Sociology, combined group of second and fourth year students at South-West University (SWU) - with 10 participants, carried out on May 31, 2021.
- specialty Sociology and Psychology, first year students at SWU - with 12 participants, carried out on May 7, 2021.

The aim was to follow the students' views and assessments of the ongoing digital

learning and in particular evaluation of digital culture of the professors, who are the central figures in the education university process, as they structure and set the rhythm of the virtual classroom. The characteristics of the conducted online group discussions are shown in order to explain the opinions of the students, but also to make a summary of their ideas and expectations regarding the online educational situation. In both online focus groups, the main topic discussed was: what is the quality of distance learning? What are the advantages and disadvantages of this type of training? What is the difference between the two forms (face-to-face and online) of learning and teaching and which of them is preferred and why?

In connection with the digital online training, carried out at SWU two digital platforms for training have been used: "Blackboard" and "BigBlueButton" for all courses and specialties. Within these platforms, lectures are held in all disciplines, e-mail communication is conducted, and all tests developed are used by lecturers to assess students' knowledge. For each subject, the lecturer creates a classroom with its own code and link, which given to the students and they enter the virtual classroom to conduct the lectures.

DIGITAL LITERACY AND SKILLS

In this part of the paper we present some results obtained from the survey, related to various aspects of digitization, digital literacy and skills, people's preferences for digital devices and digital media, as well as the attitudes of respondents to fake news found in Internet.

The laptop is widely preferred for work and study: 90.2% of the respondents indicated that they own a laptop and work on it. Another widely used digital device is:

- mobile phone, 95.1% of respondents having it,
- 95.7% of people own a smartphone.

In addition, 79.8% of people say they have mobile internet and use it everywhere.

Most often, respondents spend on various activities related to their work:

- up to 1 hour per day: 25% of the persons
- up to 3 hours a day: 32.4% of the persons
- up to 10 hours a day: 25.5% of the persons.

Respondents spend the following hours on the Internet to studying:

- up to 1 hour per day: 32%
- up to 3 hours a day: 40.7%
- up to 10 hours: 13%.

The following hours are spent on the Internet to maintain contacts:

- up to 1 hour per day: 48.9%
- up to 3 hours a day: 38.3%
- up to 10 hours a day / 8.4%.

From the obtained data it can be concluded that the Bulgarian population of different ages and settlements has the necessary digital devices, which are an important factor for obtaining information, for making contacts - business and friendly, for performing various activities related to the profession and training. People have mobile internet, which is an additional convenience and a prerequisite for the digitalization of life. One of the important things for which the Internet is preferred network is that there is various information related to different aspects of everyday life and leisure, as well as connected to self-education, culture, training, work and any other aspects of life, diseases, institutions. That is why the issue of fake

news ones comes to the fore, of the trust we have in the information we receive from the Internet. In this regard, people generally do not trust information from the Internet: 81.1% say they "partially trust information from the Internet" and 16.3% say they "usually do not trust it". In practice, this is a high percentage of people who have doubts about the veracity of the information, which is indicative of the nature of this information itself. On the other hand, it is a sign for the development of critical thinking of people who tend not to take everything for granted, but to check it repeatedly. In cases where they have doubts about the veracity of the information - 87% of people say they are looking for other sites and sources to check things again. 69.2% of people have preferences for certain sites from which they are informed, but only half of all respondents (50.5%) say that they can sift the truth from the false information. 40.9% say that "sometimes" they manage to assess the veracity of the information, and 8.5% find it difficult.

Another important topic is digital skills, which was mainly addressed in the study. According to the majority of respondents (69.9%) the digital skills of the Bulgarian population are at an average level. We present the digital skills themselves in a table (Table I).

TABLE I: Types of Digital Skills

Digital Skills	Percentage distribution (%)
Using the Internet	99,7
Connecting to the WiFi network	98,2
Opening a new tab in the browser	95,8
Downloading applications	95,9
Installing applications	93,8
Downloading files	96,3
Uploading files	94,4
Adjusting the privacy settings	87,5
Filling out online forms	95,1
Creating Facebook pages	82,3
Working with Internet search engines	96,2
Sharing a video	95,5
Creating a video	81,0
Writing comments on social networks	94,3

Creating a blog	44,4
Creating a deposit	33,8
Creating a podcast	22,0

These digital skills can be divided into three main groups:

- Using an already created digital product: such as, Internet, WiFi network, browser, applications, files, search engines, social networks. This type of digital skills possessed by almost everyone - over 95% of people say they have it.
- Creating a new digital product: like, creating a Facebook page, creating a video. These skills possessed by a smaller number of people - about 80% of the sample.
- Creating a digital product with a high degree of complexity: such as, creating a blog, deposit, podcast. This skill possessed by about 1/3 of the respondents.

These distributions in terms of skills in the field of digital literacy are available to respondents of different ages, but those digital skills that require a higher degree of expertise possessed by a small number of people. In order to study digital literacy, it is important to monitor the quality of the digital skills of the respondents' parents. So we asked the question: Do your parents use the Internet?

Half of the people answered that their parents use the Internet freely - 50.3%

- 23.2% of respondents said that only one parent uses the Internet.
- 14.3% stated that their parents do not use the Internet.

In summary, it can say that in Bulgarian society there is a very high percentage of people who have basic digital skills, use digital devices, and have an excellent positioning on the Internet.

3.1. Digital learning in the conditions of Covid-19 situation

In 2020 and 2021, the education system faced serious difficulties caused by the Covid-19 pandemic, which created challenges in terms of innovation and creativity in education. Existing pedagogical

methods and techniques have been tested and rethought. For all participants in the educational interactions, this situation was unexpected and full of ambiguities. In these circumstances, digital literacy and learning were placed in conditions of unprecedented stimulating development, as they became a prerequisite for upgrading knowledge and skills in a digital context. Digital literacy is directly related to the learning and teaching; in the conditions of the Covid-19 situation, distance learning as the main form of conducting classes in the educational system has become necessary at all levels. Distance learning is made possible by the Internet and any of the following digital devices: desktop computer, laptop, tablet or mobile phone. In this type of training can be used different types of formats - text, video, audio, graphics, interactive content, tests to assess knowledge and more. Teachers and students have encountered the digital format of education on a large scale in secondary and higher education, although it is known as it has been applied before, but it has not been as ubiquitous and compulsory as it has been in the last two years. Digital literacy has become a mandatory element of the arsenal of teachers and students so that classes can be fully conducted. In the period from almost March 2020 to May 2021, a series of measures were applied to "tighten" and "loosen" the actions related to distance learning. In this situation, the quality of the conducted training is important and one of the indicators of the quality is the feedback with the students and the way in which they evaluate the distance learning.

Here are the views of students, shared in two focus groups held in May 2021 with students from SWU, on the advantages and disadvantages of online learning, imposed by the Covid -19 pandemic in our country.

The advantages mentioned by the students of the distance digital learning are:

- The training is individual, everyone determines their own rhythm of learning, there is no need for additional classes with other teachers:

„The ability to study with individual pace, freedom and flexibility in choosing the provided courses and elective courses "(woman, 1 year student).

- Free time is released, which can be invested in other activities.

„It also saves time. With online learning, teachers, along with students, can save a lot of time. Everything is at your fingertips at home. Immediately after the lecture we close the laptop and concentrate on our daily tasks. This gives equal conditions for education to all, regardless of which part of Bulgaria they are in. "(woman, 2 year student).

- Various materials, video and audio content and other modern technologies are used.

„E-learning at the university is a modern approach to teaching, which uses various techniques and materials, devices such as: presentations, video tutorials, discussions to make the topics more understandable and clear "(woman, 4 year student).

- The student can study anywhere - where there is access to the Internet.

„Everyone has a mobile phone or laptop on hand from which he / she can connect wherever he / she lives. In this way, people are not tied to transport to learn. To some extent, this also brings us safety, because the level of road accidents is particularly high during peak hours, when everyone goes to school, work or to university "(woman, 1 year student).

- The student creates more amenities that will assist him:

„At home, where I am during the online training, I have many amenities - I can make coffee, sit in a comfortable chair, sometimes get up, even when I'm hungry to eat. Sometimes it happened to me to be away from home and still be online and listening to the lecture"(woman, 2 year student).

- Economically more favorable for everyone:

„At present, education is much more cost-effective. Both for universities and

schools, and for students. For the former, there are no high costs for building maintenance, consumables, electricity, water, heating, as well as possible extraordinary costs when using the equipment in the building (for example, to break a door in the process of use and it must be repaired in a short time term). All this leads to large savings. On the other hand, there are also lower costs for learners - for example, transport to school or university, teaching aids, even food "(woman, 1 year student).

Disadvantages of the distance digital learning according the students are:

- Limited social contacts

„One of the disadvantages for me is that our social contacts are limited to a minimum, and people are social beings. Also, when we are constantly locked up at home, we are more likely to get depressed or into another bad mental state "(man, 2 year student).

- Changing the environment

„There is a lack of academic control at home in case of violation of discipline. There are many factors that distract students and there is nothing to be done about it. In this way, the training becomes of lower quality "(woman, 2 year student).

- Technical problems

„If the connection speed is low, this directly affects the playback of audio, video and overall content. Such restrictions can cause long waits to pull files so as to interfere with the learning process; when there is a lot of information traffic, the connection is slower "(man,1 year student).

- Pedagogical and organizational problems

„Difficulties with the inclusion of all students in the discussion - only 15-20% of those present participate in the discussion."(woman, 1 year student).

- Health issues

"A common consequence of prolonged computer use is possible damage to vision as well as the spine (from improper posture)" (man, 1 year student).

- Environmental problems

"The disposal of plastic waste, packaging of disposable products is increasing. In times of crisis, people are increasingly buying packaged foods. The coronavirus crisis has put climate problems in the background, which are no less significant, and we need to address them as well "(man, 1 year student).

The Comparison - distance and / or face-to-face training:

„In the end, I think that given the situation with Covid-19, everyone involved in the online learning process is doing well and this is a very good alternative for subsequent flu holidays, for example, or other prerequisites that would hinder the on-site training“ (woman, 2 year student).

The consequences of the change in the way of learning in school and university education can be found both in the psychological and emotional state of the students and in the quality of the education they receive. On the one hand, the lack of personal contact with the teachers creates difficulties (according to most students) for the full understanding of the material and timely explanation of any ambiguities. Many students and teachers in the country say that online lessons are not as effective as possible and the learning process is slow and complicated. On the other hand, lack of contact with peers and poor physical activity also have a negative effect on the psychological state, according to students. Changes in family lifestyles can lead to more family conflicts, feelings of stress and anxiety. In this regard, the economic problems associated with maintaining a stable Internet connection, as well as high-quality mobile devices, should be emphasized, and not all families can provide this. No less negative are the health problems that result from prolonged hours in front of the computer: visual, neurological, spinal. The difficulties related to the nature of teaching, the difficulties in transforming the educational content into electronic form, the creation of an environment that will be stimulating for the students must also be added. Another problem is related to the discipline of learning, the need to have

certain skills for time management and maintaining motivation for understanding and learning. In addition, in order to conduct distance learning, it is necessary for the participants in the learning process to have technical skills and to feel comfortable with the technology. It can be said that despite the existing opinions that distance learning has a negative impact on the quality of education, it turns out in practice that it has a serious contribution and is gaining more and more popularity. This is related to the possibility of distance learning at different ages.

Distance learning allows a large number of students to be trained by a relatively small number of teachers, which reduces costs. In addition, those wishing to learn can carry out their education regardless of their place of residence and the occupation or profession they have and practice. Almost all participants in the focus groups emphasize that distance learning is effective, but they prefer to return to the university and classrooms, because live contact with both peers and teachers is of great importance for social and mental health, but also to develop skills, knowledge and cognitive characteristics.

3.2. Summary

With regard to measures in higher education and their implementation in order to improve the conditions of digital learning, several guidelines can be displayed:

In the SWU "Neofit Rilski" there is digital platforms in which lectures and exercises are held. The teachers enter the respective day and time according to the schedule and teach their lecture to the students. They can use a presentation they have prepared and upload it to the system or teach a lecture in Word format that they have sent in advance. Another commonly used practice during teaching is online video, where the entire lecture is pre-recorded and played to students. Direct communication with students is most often used when they can ask questions that require further clarification; or teachers to raise specific

issue or topic in the form of discussion. The digital systems used allow constant eye contact through a camera, which provides a visual connection at all times. From this point of view, the main improvements can be made in terms of the optimal presentation of information during lectures and exercises; including more discussions to understand how well the material is understood, as well as to open the learning practices to interactivity, giving specific, practical tasks, teamwork and presenting the results of teamwork. All this contributes to the modernization of digital learning and its laying on reformed foundations.

Another direction for optimizing digital learning is related to improving the digital preparation and skills of teachers in terms of improving e-platforms, as well as the ways in which they can teach better. In the opinions shared by the students, as well as from personal impressions, we find that some of the teachers have difficulties with online teaching; this is related to the age, to the length of time that teachers have been part of digitization and have mastered digital literacy, which includes different skills and stages. It should be emphasized that especially in the first months of Covid-19 lockdown - the months of April-May 2020, most of the teachers - in both secondary and higher schools, gradually entered the digital culture and skills. In addition, we must add that all teaching materials of the Bulgarian educational system are provided for face-to-face training. It was necessary to rework this arsenal of lectures, topics and materials so that it could turn from an oral lecture into a digital one, and this takes time. This set of circumstances brings to the fore the need to improve the digital skills of teachers and their compliance with digital platforms and their capabilities.

The digitalization of education in its entirety is already a fact, but it is necessary to raise to a new level the overall education and skills of teachers and students. Digital technologies are increasingly integrated in teaching and learning, significantly increasing the quality of educational

resources. This creates preconditions for the distance format of teaching to have an equal place with the face-to-face forms of education - full-time and part-time. Online learning through the use of various tools and techniques and the ability to access and share information, including that provided by the Internet, has the potential to stimulate and contribute to the development of digital literacy. This potential could not be achieved by itself - as a consequence of the virtual classrooms, it requires additional efforts from students, teachers, requires their active participation. One of the advantages of online learning, as shown in the opinions of students, is its flexibility. Instead of training in a fixed place and time, with the help of high technology it can take place anywhere and at any time. Online learning uses a variety of forms of expression - video, audio, text, knowledge tests, etc., which in turn could lead to higher engagement and efficiency in understanding and remembering information, as it helps participants with different learning styles.

In this way, the whole society benefits later, because many more people manage to get an education. Therefore, these advantages lead many schools and universities to organize and conduct distance learning courses, which are gradually gaining a large share and importance. Most of the students emphasize a number of pragmatic things resulting from distance learning, which are related to better time allocation, less travel, less costs, the opportunity to participate in a lecture from different places, such as online inclusion, which also has protective action against the Covid-19 pandemic. Digitization has entered all areas of society and is an important and even dominant principle of social existence and development. Therefore, the only way in which society can exist is to stimulate the conditions of digitization, to develop specific measures and policies to increase people's digital literacy and digital skills, as well as to develop personal critical thinking towards information and various sources and networks.

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