

EDUCATION IS BECOMING DIGITAL – THE YOUTH ATTITUDES TOWARDS ONLINE TEACHING DURING THE COVID-19 PANDEMIC

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ABSTRACT

One year has passed since the world declared a state of a pandemic caused by COVID-19. The main objective was to limit the number of people in public places to mitigate the spread of the virus. The Serbian government also decided to suspend teaching in higher education institutions, secondary and primary schools, and the regular operation of preschool education institutions. The habitats of all the inhabitants of the world have completely changed in all spheres of life. Offices and classrooms have moved into family homes and the question now arises as to how much digitization has made it easier or harder to complete everyday responsibilities. However, they all had to come to terms with the fact and adapt in a possible way to the current situation. Teachers and parents faced a difficult challenge, but perhaps the most difficult was for pupils and students, among whom many have not had direct contact with their professors for a year and they master most of the material on their own. The aim of the research in this paper was to determine how much the way of conducting online teaching in Serbia has changed, compared to last year. An attempt was made to determine whether more positive or negative grades were given by students for the approach and manner of teaching in high schools and faculties.

Keywords: Education, technology, teaching, digitalization, the youth

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INTRODUCTION

When we talk about education, educational processes, or successes in educational activities, we usually mean the formal context of education, which is realized in colleges or universities. [1] It only took a couple of weeks for COVID-19 to change the way of learning in educational institutions around the world. Changes have been introduced to mitigate the development of the pandemic itself, to change education for the better, but also that students would not have problems with learning according to the planned curriculum. The transition to online classes brought with it many challenges. The key question was whether the teachers were ready and whether they had enough knowledge to use online platforms to explain the material to students. Their knowledge and dedication have a decisive impact on the quality of the lectures. COVID-19 crisis has affected 144.697.476 learners, according to UNESCO. [2] The existence of various software used for online classes is facilitated communication between teachers and students. Unfortunately, it is impossible not to notice the inequalities that exist in the knowledge of students but thanks to information technology, teachers can know more easily set aside extra time and dedicate themselves to those students who need help. One of the examples of how to overcome the shortcomings of digitalization in education in a good way is the Republic of Serbia. The government has decided that educational content, which is in line with the curriculum, will be broadcasted on national frequency television so that all primary and secondary school students have access to the materials. However, the disadvantage of this way of working is the impossibility of interaction and feedback from students so that teachers have an insight into the understanding of the teaching content. Time will tell whether the current technical education has managed to strengthen the connection between teachers and students because it is not enough just to pass the material.

DIGITALIZATION IN EDUCATION

The application of information and communication technologies in the global world environment is constantly increasing. Digitalization represents the use of digital technologies to change a business model and provide new opportunities for revenue and value creation and it is a process of transition to digital business. [3]

Digital competence is one of the eight key competencies for lifelong learning and active participation in society. It includes a secure, critical, and responsible use of digital technologies in the learning and working process. Digital competence includes information literacy and data comprehension, communication and collaboration, media literacy, digital content creation (including programming), security in the digital environment, intellectual property issues, problem-solving skills, and critical thinking. [4][5]

Republic Statistical Office of Republic of Serbia presented the results of The Annual Survey on The Use of Information and Communication Technologies and the results are as follows: over 3.8 million persons used a computer in the last three months, over 4.94 million people use mobile phones, while over 4.11 million people have used the Internet in the last three months. [6] Looking at the ratio of population and the rate of use of information technology in developed countries, we can conclude that Serbia is not far behind.

One of the special aspects of our lives affected by digitalization certainly is decision making. People's choices and behavior are greatly influenced by new digital technologies. [7] Despite the great advantages and popularity of smartphones, their excessive use has led to new concerns about the mental health of its users. [8] Addiction and problems with concentration and radiation exposure are the key health problems.

Digitalization in education implies the use of modern information technologies and technological solutions during the transformation of the educational process [9]. The growth of information and communication technologies is of an exceptional significance [31] because information technology has become a profession of the future [30]. The digitalization of education did not have the adequate time needed to change and adapt to the current educational system. Digital transformation of the educational system can be observed in two ways: the first way defines the introduction of digital technologies in the educational process, and it is the most common approach; the second way is based on a study of digital skills within the educational. [10]

Technology has led to significant differences in the teaching and learning process. The use of digital devices and various communication channels in learning led to the fact that communication between teachers and students has reached a higher level. This contact has a decisive influence on the satisfaction

of students and on their activity in classes, which decreases due to alienation and social distance between them. There are different areas of application of Information Technology in education, such as developing educational websites, methodological and didactic materials, organizing and implementing computer experiments with virtual models. [11]

For classes to take place online, both teachers and students must have the appropriate hardware (a computer, tablet, or a smartphone) and software that allows at least some interaction, as well as technical conditions (a fast internet connection and workspace). Communication between teachers and students is carried out in different ways, depending on the decision made by the teaching council of a particular educational institution. We can divide them into the following groups: videoconference, tele teaching, television channels, chat applications and e-mails. [12]

Learning through different multimedia content (text, image, sound) encourages greater interest and improves students' concentration in general. The advantages of e-learning for students are flexible time, place and duration of learning, availability of education, the possibility of unlimited repetition of lectures, multimedia environment (audio, video, text...). It seems that the Internet is the most perfect instrument of education: it is very practical, but also has immeasurable potential for expanding and deepening knowledge. [14] There are some trends and tools in the education service whose functioning relies on technology.

Gamification of education (gamification of learning) is the application of games in teaching with the idea of making it more fun and thus improve the engagement and interest of students. In fact, it is the use of elements and techniques to create games in the context of teaching. [15] [16]

Artificial Intelligence (AI) and Machine Learning (ML) are two potential partners when it comes to education. Some institutions use AI systems to monitor students' progress and alert teachers when problems with students' performance may occur. Machine learning can assess students' competencies, find weaknesses, and recommend additional materials. [17] AI could be implemented in colleges through the application of chatbots. Chatbots are available 24 hours a day and can help students in answering their questions instead of professors, no matter the time of day or night. [15]

RESEARCH METHODOLOGY

After the research "What do the Youth Think About Online Teaching?" at the end of the school year 2019-2020 the results were compared to the first semester of the school year 2020-2021. The aim was to compare if students were satisfied with the quality of work if there was any progress with teaching methods, and how they feel about not going to school regularly for over a year. Online teaching does not allow teachers to create a true picture of the level of student participation in class, as well as how much they understand the material. The Republic of Serbia belongs to a group of countries that have introduced a system of combined teaching in high schools: one week, one group of students follows classes in school, while the other group is online. And it is on a weekly basis. An anonymous online survey was used as an instrument and 157 young people from high schools and universities were examined. The survey consists of 16 questions. Five questions are the Likert scale, two are open-ended questions, while the other questions contain the offered answers.

RESULTS AND DISCUSION

Table 1 shows data on respondents by gender, age, and education

Table 1: Distribution of respondents by gender, age, and occupation

Gender:	2019/2020	2020/2021
Male:	52 (37.4%)	53 (33.8%)
Female:	87 (62.6%)	104 (66.2%)
Age [years]:		
<20	24 (17.3%)	91 (58%)
20-25	113 (81.3%)	64 (40.8%)
>25	2 (1.4%)	2 (1.3%)
Occupation:		
Student:	134 (96.4%)	78 (49.7%)

Pupil:	5 (3.6%)	79 (50.3%)
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Questions with offered answers "yes" or "no" are given in Table 2.

Table 2: Shows the "yes" or "no" questions

Question	Yes	No
Did you have organized online classes during the 2019/2020 school year?	148 (94.3%)	9 (5.7%)
Do you have organized online classes in the school year 2020/2021?	150 (95.5%)	7 (4.5%)
Do you think that the online way of teaching is more successful this school year?	90 (57.3%)	67 (42.7%)
Do you think that in this school year you have improved yourself and your knowledge, by using the online platform?	63 (40.1%)	94 (59.9%)
Would you continue your education in this way in the future (if there is a choice)?	53 (33.8%)	104 (66.2%)

Based on the answers, it can be concluded that the organization of classes is almost indistinguishable from last year, and last school and this school year it was organized online. In question number five: "Would you continue your education in this way in the future (if there is a choice)?", the respondents could choose the answer "Yes, because this way I have more time for myself" or "No, because I think that going to classes and socializing are important".

Table 3 shows the answer to the question "How many school classes did you have daily?" and compares them with last year's teaching organization.

Table 3: How many school classes did you have daily?

Years	1 to 3 classes	3 to 5 classes	More than 5 classes
2019/2020	72 (51.8%)	60 (43.2%)	7 (5%)
2020/2021	31 (19.7%)	74 (47.2%)	52 (33.1%)

The number of respondents who had more than 5 classes a day (52 – 33.1%) is significantly higher compared to the last school year (7 – 5%), which shows that it took more time to better organize and maintain classes. We can also see from the Table 3 that the number of students who listen 1 to 3 classes a day is halved in this school year. That video recording is very useful and facilitates the learning process (they can be watched at any time and paused when something is not clear), the students from the U.K. University agree. [18] Respondents from India said that they prefer 45 minutes duration classes, with 15 minutes break between them. And that they can attend maximum 4 classes per day. [19]

The answer to the question "Is your communication with the lecturers interactive, or do you only get learning materials?" is shown in Table 4 and the results are compared with the results from the previous school year.

Table 4: Is your communication with the lecturers interactive, or do you only get learning materials?

Years	Teaching is interactive.	We get learning materials.
2019/2020	104 (66.2%)	53 (33.8%)
2020/2021	103 (66.1%)	54 (33.9%)

Based on the answers, we can conclude that teaching is more interactive, both in this and last school year. This proves the dedication and care of the lecturers to ensure that students understand the learning materials. A survey conducted among students in Germany in 2017. showed that students also agree and appreciate it more when professors can explain all their doubts, during interactive online classes. [20]

Table 5 shows which platform is most commonly used in schools and colleges.

Table 5: Which platform do you use to conduct online classes?

Google Meet	24 (15.3%)
Zoom	12 (7.6%)
Microsoft Teams	55 (35%)
Skype	0
Google Classroom	41 (26.1%)
Other	21 (13.4%)
We do not use any learning platform	4 (2.5%)

Most respondents use the Microsoft Teams learning platform – 55 (35%), while Google Meet is in third place – 24 (15.3%). There is a big difference compared to the last year, when Google Meet was in the first place with a 54.7% stake. Microsoft Teams was in second place, with a significantly smaller number of users (only 15 – 10.8%), compared to this school year. The fact that the participants mostly use the Microsoft Teams platform (its use requires payment) best shows the efforts of the authorities to raise lectures to a higher level.

The assessment of satisfaction with certain aspects of teaching is shown in the Table 6.

Table 6: Likert scale - satisfaction with communication, materials, and dedication of lecturers. As well as advantages in learning

Question	I completely disagree	I do not agree	I have no opinion	I agree	I totally agree	Mean
I am satisfied with the communication with the lecturers.	10 (6.4%)	19 (12.1%)	36 (22.9%)	48 (30.6%)	44 (28%)	3.6
The lecturers are dedicated to explaining the material.	3 (1.9%)	9 (5.7%)	37 (23.6%)	48 (30.6%)	60 (38.2%)	4
Lecture materials are understandable.	5 (3.2%)	11 (7%)	41 (26.1%)	51 (32.5%)	49 (31.2%)	3.8
Flexibility (it is possible to attend lectures, wherever you are).	16 (10.1%)	13 (8.2%)	26 (16.5%)	21 (13.3%)	84 (53.5%)	4
Save time on transportation to the college building.	16 (10.1%)	13 (8.2%)	37 (23.6%)	18 (11.4%)	78 (49.6%)	3.9
There is a greater commitment of lecturers to each student individually.	47 (29.9%)	41 (26.1%)	37 (23.6%)	17 (10.8%)	21 (13.3%)	2.6
It is easier to follow online classes and master the provided material online.	62 (39.4%)	25 (15.9%)	28 (17.8%)	17 (10.8%)	26 (16.5%)	2.5
Through online classes I am free to express my criticism, because I know that the lecturers will do everything to make us more satisfied.	41 (26.1%)	19 (12.1%)	35 (22.2%)	23 (14.6%)	40 (25.4%)	3

The mean for the statement “I am satisfied with the communication with the lecturers” is 3.6, for the statement “The lecturers are dedicated to explaining the material” the mean is 4, for the statement “Lecture materials are understandable” the mean of responses is 3.8, the statement “Flexibility (it is possible to attend lectures, wherever you are)” has the arithmetic mean 4 and the statement “Save time on transportation to the college building” has the arithmetic mean 3.9. In order to better determine the attitudes of the respondents and explain the results, the average scores obtained by the Likert scale were rearranged into three categories: scores from 1 to 2.5 indicate a negative attitude; from 2.6 to 4 indicate a neutral attitude, while grades from 4.1 to 5 indicate a positive attitude. Respondents did not express a negative attitude towards any of the statements, which is a good indicator because with adequate measures and

activities, neutral attitudes can be turned into positive ones. [21] A few more statements with a neutral attitude are: “There is a greater commitment of lecturers to each student individually” and “Through online classes I am free to express my criticism, because I know that the lecturers will do everything to make us more satisfied”. This means that the lecturers are on the right path and that the satisfaction and success of the students are guaranteed.

Students are pleased to be able to attend classes wherever they are, they just need to be online and registered on the platform. Constant access to learning materials, downloading materials after classes, and fast exchanging data with teachers are the advantages of online teaching. A lot of attention is paid to predictions about the impact of digitalization in the long run.

HolonIQ (2020) conducted research on the impact of COVID-19 on the education system globally. The results are pessimistic, with half saying the education system will deteriorate. The survey was about Long-Term Impact of COVID-19 on Education Organizations. Respondents from Europe gave the following answers: 7% of them said that it will be substantially worse, 25% of them think it will be moderately worse, 30% of the answers is that it will stay the same, the approximate number (30%) thinks it will be moderately better, and only 12% say it will be substantially better. Respondents from North America gave approximate answers, while Africans view change most positively. [22]

As for the situation in Serbia, a lot of work has been done to improve online teaching, to enable students to go to educational institutions (but to respect all prescribed measures) through combined teaching. There is a difference of opinion about the lack of communication with lecturers. Last year 38.7% of respondents said this was not noticeable, while this year a smaller number of students think so – 22.2%.

It is very important that lecturers give their best in communication with students. The statement "I am satisfied with the communication with the lecturers" confirms this, as many as 86% of respondents said, "I agree" and "I totally agree". High satisfaction with communication with lecturers also exists at the Management Science Department of the University of Karachi, Pakistan. Most of their students - 60% of them confirm it. [23]

That flexibility is an advantage of online learning is shown by the fact that research participants in Ireland think the same as our participants: it is essential for students to be able to access the materials at any time, and it does not matter what country they are from. Most respondents (53.5%) said that “Flexibility” is an advantage in online learning. A survey conducted at an Irish university gives similar results: 64.3% of respondents agree that it means that they can learn from their warm homes, at meal time, and that they can learn in home clothes, they do not spend extra time for all that. [24]

Research conducted at Naberezhnye Chelny State Pedagogical University Russian University shows that students’ answers from different countries are the same on the statement: “It is easier to follow online classes and master the provided material online”. 27.3% of our respondents said they agreed with this statement. It turned out that the same number of respondents in Russia (27%) think so. [25]

The fact is that the involvement of lecturers is very important and puts them ahead of all their other tasks. Approximate number of respondents said, "I totally disagree" (41 of them) and "I totally agree" (40 of them) for the last statement. Based on this we can conclude that lecturers should be more open and ready to accept criticism from students, which can help them to improve their teaching in the future. Lecturer behaviour can have a major impact on student’s motivation to learn. [26] Italian students in large number agree that online teaching is better than traditional and their satisfaction with this way of learning is high. [27]

Table 7 shows the disadvantages that can cause difficulties in learning, also through a Likert scale.

Table 7: Likert scale – learning difficulties

Question	I completely disagree	I do not agree	I have no opinion	I agree	I totally agree	Mean
Lack of communication with lecturers.	35 (22.3%)	31 (19.7%)	42 (26.8%)	32 (20.4%)	26 (16.5%)	3
Lack of freedom of expression and opinion (if the lecturers only sent learning materials).	45 (28.7%)	26 (16.6%)	46 (29.3%)	25 (15.9%)	19 (12.1%)	2.8
Lack of freedom of expression and opinion, when lecturers do not allow the use of microphones on the platform.	61 (38.8%)	24 (15.2%)	37 (23.5%)	17 (10.8%)	22 (14%)	2.5
Lecturers do not want to hear objections and accept criticism, in order to improve the way knowledge is transferred.	71 (45.2%)	25 (15.9%)	29 (18.4%)	19 (12.1%)	15 (9.5%)	2.3

As for learning deficiencies, the arithmetic mean in this case shows different values. Statements “Lecturers do not want to hear objections and accept criticism, in order to improve the way knowledge is transferred” with a mean of responses 2.3 and “Lack of freedom of expression and opinion, when lecturers do not allow the use of microphones on the platform”, its mean is 2.5, indicate a negative attitude, which means that students have freedom in expressing their opinions and that lecturers are ready to accept each of those. Students consider the lack of interaction a priority difficulty at public University in Southern Spain. [28] The problem of loading content on platforms is the most common problem of students of Sabzevar University of Medical Sciences, Iran. [29] Some of the problems faced by students in India are digital divide, data limit, poor teaching skills of lecturers, and technical issues. [18]

The last two questions in the survey are open-ended. To the first question “What would you change about the way online classes are held and do you think that it is extremely important for improving the quality of lectures?” the majority of respondents said that they would not change anything – 58 (36.9%) of them. The comment that they want to return to traditional teaching is present with this answer. A very common answer, for those students who do not have interactive teaching, is to change the way of teaching and to be able to communicate with teachers during classes. Another answer that is being drawn is the greater involvement of the lecturers. We can conclude that they lack companionship and socialization with their peers. The comment that runs through the answers is that they cannot concentrate while following online classes, and that they have a lot of interference from the environment.

The second question compares the way online classes are organized, compared to last year - “What do you consider to be the key difference in the way online classes are held now, compared to last school year?” From the answers we can conclude that they are satisfied with the classes this year. They gave positive comments for improving the knowledge of lecturers for the use of platforms, for their greater commitment, for the introduction of new platforms, and that the greater experience that everyone now has is crucial for all the above. Negative comments in this issue also refer to the lack of company and concentration when monitoring classes.

CONCLUSION

The results of the study lead us to the conclusion that students are satisfied with the quality of online teaching, but that nothing can replace traditional teaching and socializing with peers. After a year of conducting online classes, the lecturers have perfected their knowledge in using technology and all the effort they invest has a positive effect on students’ motivation in mastering the material. Restrictions encountered in the paper are the small number of respondents. Recommendations for future research might be to examine the interference from the environment that affect dissatisfaction with online teaching and what is best way to solve them and also to do a research at the international level.

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