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PREGLEDNI NAUČNI RAD / OVERVIEW SCIENTIFIC PAPER

EXPERIENCES OF STUDENTS AND PROFESSORS IN ONLINE TEACHING DURING PANDEMICS

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Abstract: *The time of the pandemic forced educational institutions to take full advantage of IT technologies, using all their advantages in order to ensure the educational process. A completely different approach to the educational process, online instead of the current traditional one, posed significant challenges to both students and professors. The aim of this research is to show that with the many advantages that "online education" has brought, it has given students and professors more obligations, and thus greater stress during the teaching process. The subject of the research is qualitative proof that online teaching during the COVID-19 pandemic enabled the unhindered maintenance of the educational process, but that neither students nor professors consider this way of teaching the best solution. From the data collection method, it was used the survey method with the survey technique. Of the general scientific methods, it was used the method of statistical data processing, that is processing of collected numerical data using the statistical package SPSS and their tabular and graphical presentation. Data gathering was conducted in combination: one part online, due to the rules of physical distances and other restrictions imposed during COVID- 19. In the other part of data collecting students were given opportunity to fill out the questionary during their time spent on the faculty. Self-created questionnaires were posted on platforms generally used for teaching, MS Teams and Moodle, during spring semester 2021, when combined teaching was conducted. Research has shown that students and professors have adapted well to online teaching, which they claim is of better quality than traditional, but they do not consider it the best way of teaching. It also showed that online teaching increased the level of engagement and stress among professors, in contrast to students who stated that they spent less time on online teaching and obligations than during work in the traditional way. This relevant research focuses on the advantages and disadvantages that the online way of working has brought in the educational process. The results and recommendations can be used to eliminate all shortcomings in time, so that in the following periods, if another lock down hap-*

pens due to unfavorable epidemiological situation, the educational process can be performed better.

Key words: *higher education, COVID- 19 pandemic, online teaching, traditional teaching, combined teaching.*

JEL classification: *I21.*

INTRODUCTION

The COVID 19 pandemic has forced the entire world to change its routine and habits, that is, to continue living by fighting an invisible enemy. One of the most important social areas - education and higher education institutions as key institutions of higher education, managed to adapt to the requirements of the "new normality" imposed by the fight against the virus. What was most important, the educational process was not stopped, regardless of the fact that the educational process took place in completely different conditions, online, unlike the traditional way of teaching in classrooms. Communication between professors and students took place only through online platforms, without face-to-face communication. The COVID-19 virus pandemic has tested the extent to which academic professors and students are willing to adopt and use these technologies during online learning (Allam, Hassan, Mohideen, Ramlan, & Kamal, 2020). The only way to reduce contact, during the prohibition measures prescribed by those responsible for the protection of the health of the population, which had to be respected by all public and private higher education institutions, was online learning. The most responsible in educational institutions had to take into account many preconditions such as internet speed, coverage, insufficient experience in dealing with online platforms, lack of procedures for assessing learning outcomes and assessment, and converting curriculum from offline learning to online. Some research shows that students and academic staff discover unexpected facts about each other during physical and social distance, such as their lecturers' own limits and limitations, as well as their inability to use technology and their inability to use online time properly (Philippe, Schiavio, & Biasutti, 2020). This paper will begin by recalling the circumstances during the outbreak and duration of the COVID-19 pandemic, focusing on a private higher education institution that had all the technical and technological prerequisites for online teaching and examining the opinions and experiences of its students and academic staff. The subject of the research is qualitative proof that online teaching during the COVID-19 pandemic enabled the unhindered maintenance of the educational process, but that neither students nor professors consider this way of teaching the best solution. The aim of the research is to prove through current research that with the many advantages that "online education" has brought, it has allowed students and professors to increase their obligations, and thus greater stress during classes. The limited number of studies done so far on this topic reinforces its importance. The social goal of the research is to try to focus attention on the advantages and disadvantages that the online way of working has brought in the educational process. The results could be used in order to eliminate all the shortcomings that may arise in the future periods, in case of eventual necessity for lock down due to unfavourable epidemiological situations and provide conducting of better educational process.

The general hypothesis that this paper proves is: students and professors have adapted well to online teaching, which they claim is of better quality than traditional, but they do not consider it the best way to teach. The paper also contains four special hypotheses:

1. Online teaching is of better quality than teaching conducted in the traditional way before the pandemic.
2. Students and professors have adapted well to all the challenges of online teaching.
3. Online teaching has increased the level of stress and engagement of professors and students.
4. According to students and professors, the best way to teach is a combined way.

Through a review of the literature and methodology, to the results and discussion of them, in conclusion, this paper will show all the advantages and disadvantages of online learning according to the surveyed students and professors, as well as suggestions for possible future research.

LITERATURE REVIEW

The World Health Organization (WHO) declared the election a global pandemic of COVID-19 on March 11, 2020. The term "pandemic" is defined as "an epidemic that occurs worldwide or over a very wide area, crossing international borders and usually affecting large numbers of people" (Doshi, 2011). The virus was first discovered in December 2019 in Wuhan, China, and caused a lasting pandemic (Hui, Azhar, & et al., 2020). The first case was discovered on November 17, 2019 in Hubei, China (Ma, Zhang, & et al., 2020). The crisis caused by the corona virus has quickly changed some established patterns, habits and procedures in our lives, and at the same time there are new and different needs of the general public in terms of information in crisis situations (Matijević & Mandarić, 2021).

In Bosnia and Herzegovina, the first case of coronavirus was recorded in the entity of Republic of Srpska, March 5, 2020. As early as March 10, the Government of the Republic of Srpska issued a proclamation that all schools and higher education institutions were to be closed for twenty-one days. As of March 30, a ban and restriction on movement and work, as well as all types of public gatherings, will be introduced, and this measure will remain in force until April 13. The Republic Headquarters for Emergency Situations only extends the adopted measures, until November 2, when it returns elementary and high school students to school, without restricting the manner of teaching at higher education institutions. Most of the faculties and colleges have opted for combined teaching, that is a combination of traditional and online teaching. Online teaching was the solution and the new "normality" of the educational process. New communicative models emerge and become a new normal state of mind (Babić, Muhić, & Tica, 2021). The quality of teachers and their knowledge of the subject remained the same, the quality of students and their interest in the teaching content of a particular subject also remained the same, the interest of the educational authorities remained the same because there is no record of rapid curriculum change. The only thing that has changed is the communication channel and it has suddenly become clear how enormous and significant a factor this is (Halilović, 2020). The information soci-

ety is a force that has changed many aspects of the way we live today (Oliver, 2002). Thanks to it, our culture has become technological and it requires the use of technology at home, at work and at school (Alexander, 1999). Through the Internet, and especially the application of WEB 2.0, access to new forms of communication and knowledge formation is provided outside formal educational institutions (Goldie, 2016). Online teaching tools played a crucial role during this pandemic, helping schools and colleges facilitate access to the teaching process during the period of closure of educational institutions (Subedi, Nayaju, Shah, & Shah, 2020). All this influenced the sudden transition to online teaching, after the proclamation of the COVID-19 pandemic, to be as painless as possible. However, this transition opened a number of questions about the advantages and disadvantages of this way of learning and teaching, about the problems and successes of students that they achieved by following online classes. The results of research conducted in the world show that there is no statistically significant difference between the success of students who attended traditional and online classes (Said, 2021). However, some research shows that students are not interested in online learning (e-learning) because it is less enjoyable than traditional learning (Hasan & Bao, 2020).

Assessment and comparison of the performance of students who attended traditional classes before the pandemic, and online and combined during the pandemic, which was the main goal of the research conducted at a private higher education institution in Banja Luka, showed that students achieved the best success in traditional classes. This is shown by the results of the research, where it is noticeable that the performance of students is better in traditional teaching compared to online and combined teaching, and this can certainly be explained by the fact that students are accustomed to this way and method of work (Išaretović, Đurović, & Agić, Impact of the Covid-19 pandemic on higher education: The case of Republic of Srpska, 2021).

The research of Norwegian scientists is one of the first studies that investigated the attitudes and opinions of professors about online teaching during the lockdown period, in a study conducted on 303 students and 56 teachers. Short time and lack of learning resources stand out as key obstacles to the transition to online teaching. Students and teachers pointed out the lack of sufficient practice in online teaching, but both quickly adapted and showed a positive attitude towards change (Hjelsvold, Bahmani, & Loras, 2020).

This research was conducted in a private higher education institution that had all the technical and technological prerequisites for online teaching established even before the pandemic. The educational process during the pandemic, its advantages and disadvantages from the point of view of professors and students is the main subject of the research.

METHODOLOGY

Research methods, techniques and instruments

From the data collection method, it was used the test method with the survey technique. Out of the general scientific methods, it was used the method of statistical data processing, i.e., processing of collected numerical data using the statistical package SPSS and their tabular and graphical presentation. From the research techniques, it was used a survey, factual, according to the type of data collected by this technique

and focused on the attitudes and opinions of respondents. Data collection was conducted in combination, one part online, due to the rules on physical distance and other restrictions imposed during the COVID-19 pandemic, while the others were given the chance to fill out a questionnaire during their stay at the faculty. Self-created surveys were posted on platforms that were normally used to conduct online classes of MS Teams, Moodle, during the summer semester of 2021, when classes were conducted in combination. A questionnaire for students and professors was created and offered 12 closed-ended questions using the Likert assessment scale[1]. Respondents included in the research were guaranteed anonymity, which contributed to obtaining honest data that were analysed in the paper. The questionnaire consisted of two parts: the first part with which were collected demographic information about the respondents and the second part which referred to the information about the subject of the research. The entry and processing of the obtained data was done in *IBM SPSS Statistics Version 26.* (Statistical package for social sciences used for data processing and analysis). Speaking of the sample, a total of 226 students and 26 professors from Banja Luka College participated in the survey. All students used online learning platforms and were able to make a comparison with traditional classroom learning, and a combined way of working (online and face to face). After the survey, the obtained data were coded and entered into the database for students and professors in the SPSS program. A descriptive analysis, frequency analysis and crosstabs of the obtained answers were performed, with the determination of dependent and independent variables, set through the subject and goal of this research.

EMPIRICAL DATA

Sample of respondents

The demographic information collected by this research, when it comes to the student population, is quite uniform when it comes to gender, of which 226 total respondents, 47% are men, while 52.7% are women. The highest number of second-year students is 38.9%, and the lowest number of graduates is 12.8%. There are slightly more female professor respondents, 54.2%, as opposed to 45.8% of male professor respondents. When it comes to age, the highest percentage is of professors between the ages of 40 and 60, 54.2%, the number of those between the ages of 30 and 40 is significantly lower, 25%, and the lowest number of professors is over 60, 20.8%.

Survey questions

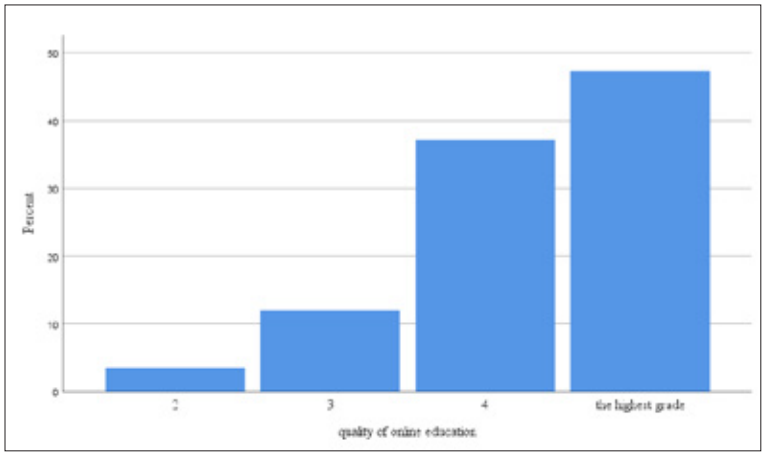
The answers of the professors and the students to the question with which they taught / listened to distance learning do not differ too much; both used laptops the most, with professors that percentage is close to 80%, and with students 58%. What is interesting and can be attributed to the media habits and media literacy of professors and their students, is the fact that this research shows that none of the professors mentions a mobile phone as a means of teaching, while 15% of students said that in this way followed classes. Another piece of evidence in support of the claim that the younger generations use

[1] Likert scale consist of series of statements that express positive or negative attitude towards certain phenomenon. The respondent expresses his/her degree of agreement or disagreement, satisfaction or dissatisfaction with the given statement on an odd scale from 1 to 5.

new media without problems and that they are "digital natives" unlike professors, most of whom are in their 40s and 60s, who are "digital newcomers" who do not have these skills (Išaretović, 2017). As Prensky explains, "today's students represent the first generations to grow up with the new technology. They have spent their entire lives surrounded and using computers, video games, digital music players, video cameras, mobile phones and all other digital age toys and tools. Today's average college students have spent less than 5,000 hours of their lives reading but over 10,000 hours playing video games (not to mention 20,000 hours of watching television). Computer games, e-mail, the Internet, mobile phones, and instant messaging are an integral part of their lives" (Prensky, 2001).

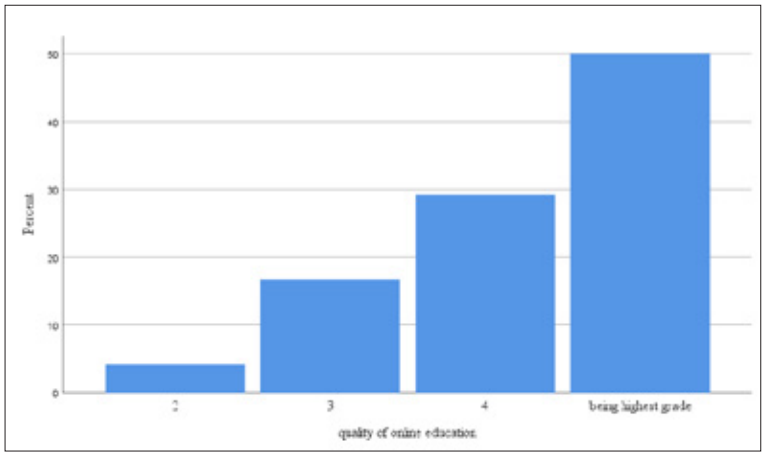
Evaluating the quality of online teaching during the pandemic, students, as well as professors, in the highest percentage decided for the offered option under number five, high quality, in the percentages of 47.3% and 50%. (Charts 1 and 2).

Chart 1. Quality of online education (Students)



Source: Author's work

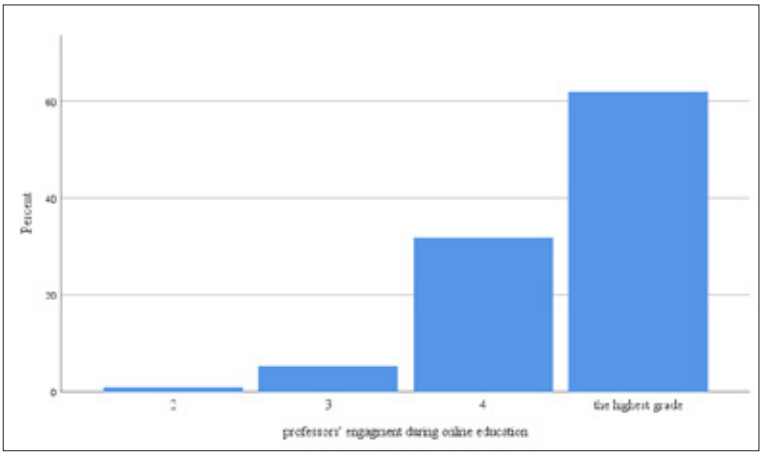
Chart 2. Quality of online education (Professors)



Source: Author's work

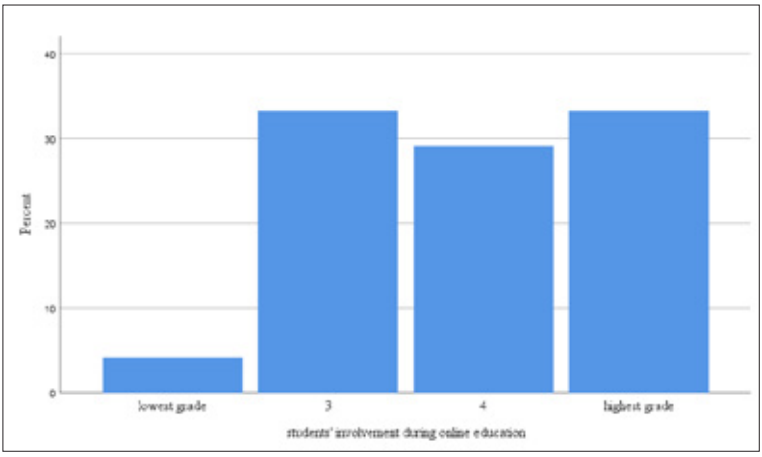
Students believe that the engagement of their professors was at an extremely high level, as many as 61.9% of them. In contrast, professors rated the involvement and engagement of students in an equal percentage, 33.3% rated them with grades 5 and 3, and 4.2% of professors decided on the lowest level of engagement, i.e., grade 1. (Charts 3 and 4)

Chart 3. Professors' engagement during online education (grade from students)



Source: Author's work

Chart 4. Students' involvement during online education (grade from professors)



Source: Author's work

The largest number of professors and students partially agree in the claim that online teaching is of better quality than classroom teaching, professors in the percentage of 62.5%, and students in 38.5%. While none of the professors fully agree with this statement, 12.4% of students have no dilemma about it, and 7.5% of students and 4.2% of professors answered that they cannot evaluate this statement.

Regarding the adjustment to online teaching, professors and students are unanimous that half of the professors and 36.3% of students have adjusted. 35.4% of students and 41.7% of professors answered that they have fully adapted to the new reality in the educational process. None of the professors answered that they did not adapt, or I do not know, unlike the students of whom 12.4% opted for one of these two answers.

The question to which professors and students gave completely opposite answers is the question of assessing whether distance learning took them more or less time from classroom teaching. The highest percentage of students 44.7% answered less time, and 28.8% of them incomparably less time, while half of the professors answered more time, 29.2% equally time, and 16.7% incomparably more time. None of the professors answered incomparably less time, and only 4.2% less time. (Charts 5 and 6).

Chart 5. Compare to traditional education, time online demanded (students)

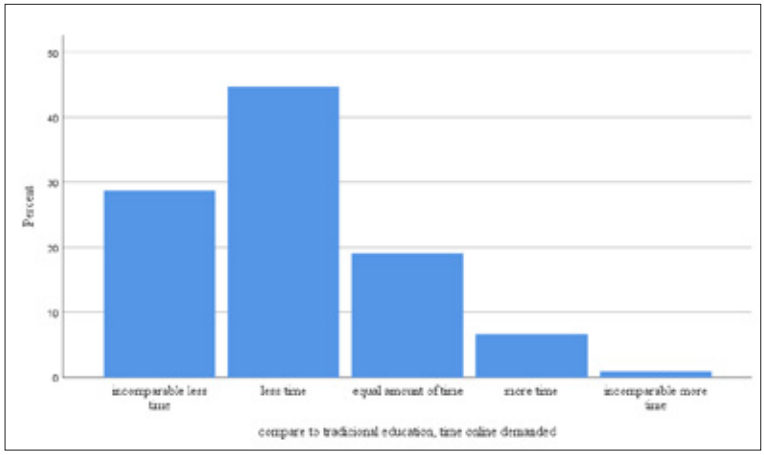


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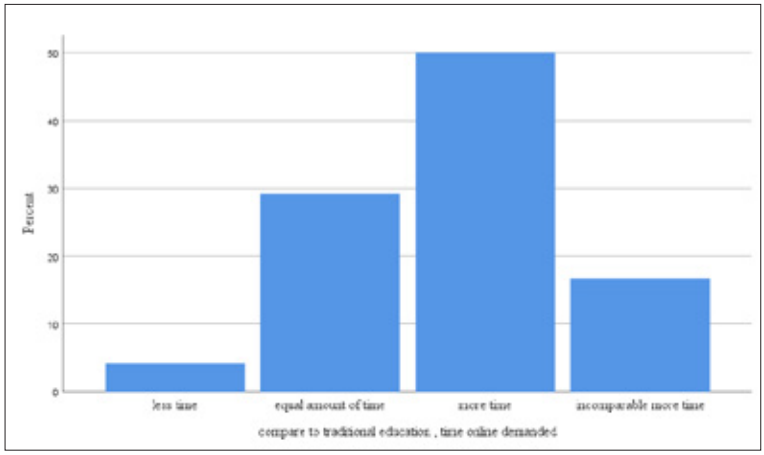
Chart 6. Compare to traditional education, time online demanded (professors)



Source: Author's work

More than half of the respondents from the student population, 53.1% of them estimated that they were not under stress during online classes, while only 3.5% estimate a high level of stress. A slight level of stress is the most frequent response of teachers in the percentage of 45.8%, 16.7% assessed the average level of stress, while 12.5% answered that they were under stress but could not assess the level.

Citing the main reason for the increased stress, the same percentage of professors, 37.7% state that the cause of that is too many obligations and tasks and the Covid-19 virus and limited movement. Among students, this question confirms the results of the previous one in which they claimed that they did not have increased stress, because 48.7% of them answered that there was no reason for stress, for 16.8% the Covid-19 virus and limited movement are the main reasons for increased stress. Only 15.9% state too many tasks and obligations, 12.4% poor internet connection and only 6.2% problems with the platform through which classes were held. None of the professors mentioned internet connection and problems with the platform as the main reason for the increase of stress during distance learning.

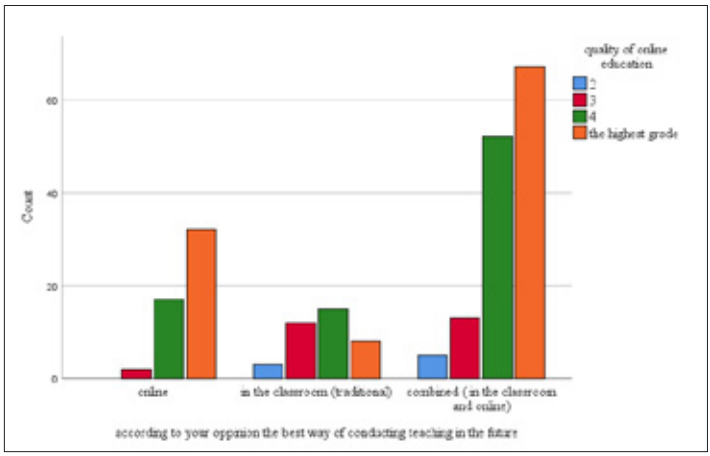
While the largest number of professors, 25%, cite the lack of procedures for conducting online classes and assessing learning outcomes as the biggest problem, the largest percentage of students, 35.4% answer that there were no problems during distance learning. 20.8% of professors opt for this offered answer, and the same percentage believe that the biggest problem is insufficient interactivity with students during online classes.

All respondents are united in the view that the best way to hold classes in the future is a combined way, with professors as much as 87.5% and with students 60.6%. What the analysis of this issue shows, and it is very interesting, is the fact that none of the professors decided for online teaching, and only 12.5% for the traditional way of education. 22.6% of students voted for online teaching, and 16.8% for the classroom, that is the traditional way of educational process.

Crossing Variables

Crosstabulation (crossover/contingency table) is a procedure by which it is examined the relationship between variables (Živković, 2015). When crossing the variables, the authors of the study also calculated Pearson Chi-Square, a test that calculates whether the crossing of the selected variables is statistically significant. Comparing students' answers to two important questions, to assess the quality of teaching and to determine which way of teaching is best in the future, this research shows that students who rated the quality of online teaching with the highest grade said in favour of a combined way of teaching, and in a slightly lower percentage for online teaching, while students who rated the quality of online teaching as four, also in the highest percentage for the combined method of teaching. (Chart 7).

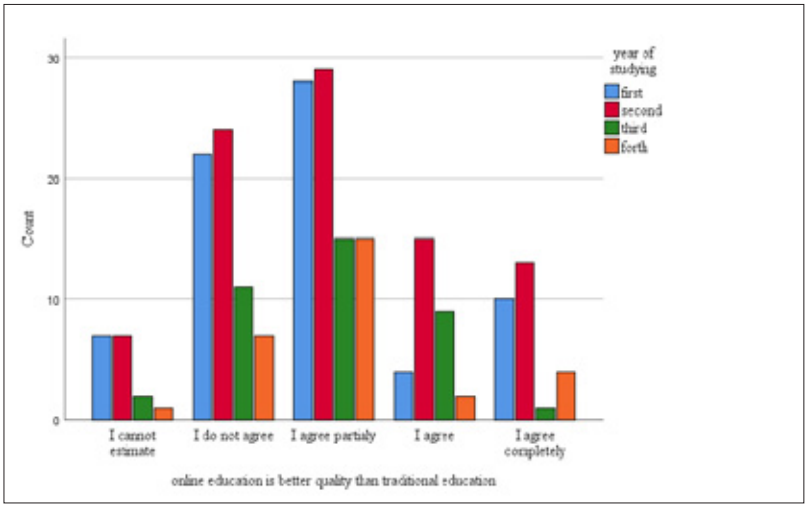
Chart 7. Quality of online education / Way of conducting future teaching



Source: Author's work

By crossing the invariant variable - year of study, with a variable - claiming that online teaching is of better quality than traditional, it is shown that first and second year students in the largest percentage partially agree with this statement, while only second year students agree and agree without hesitation. The students of the third and fourth year, also, in the largest percentage partially agree, but their disagreement is also visible, especially the students of the third year, of whom the smallest number stated that they completely agree. Thus, this research shows us that students who had more experience with the traditional way of teaching have successfully adapted to the online variant, but do not consider it a better way than the traditional way of teaching. (Chart 8).

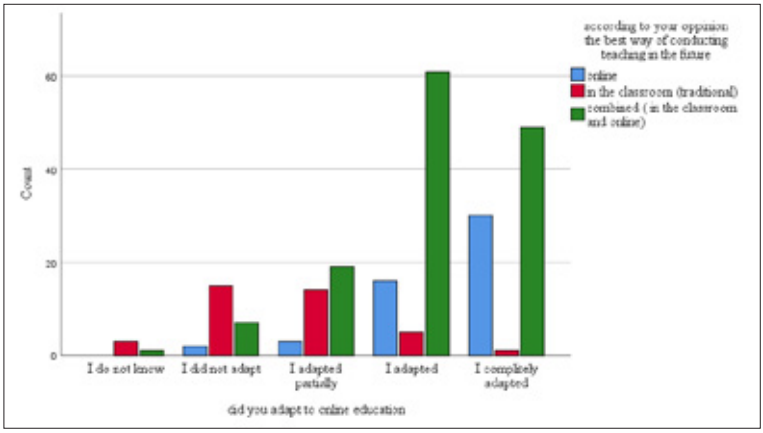
Chart 8. Year of studying / Online education better than traditional



Source: Author's work

This research shows this through the answer to the survey question - which way of teaching is considered the best for future times. Those who have declared that they have adapted and fully adapted to online teaching are in favour of combined teaching in the future, as opposed to those who have stated that they have not adapted and consider the traditional way of working the best for future times. (Chart 9).

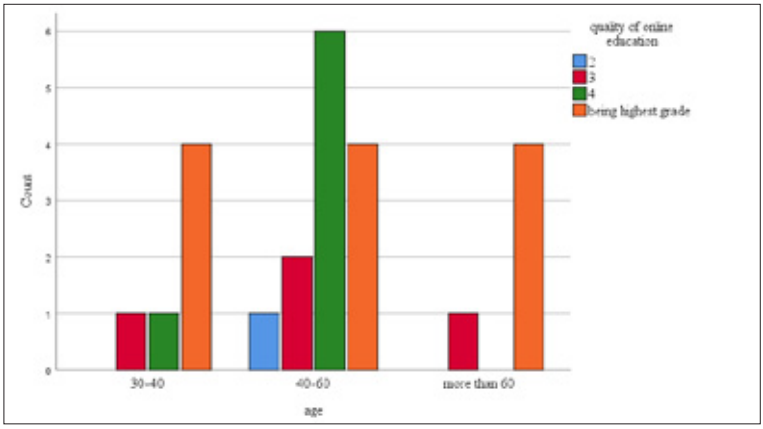
Chart 9. The way of conducting teaching / adaptation to online education



Source: Author's work

When it comes to the opinions and attitudes of professors, this research shows that age affects the adaptation and acceptance of online teaching, but not in the way that would be expected. Comparing these two variables, this research shows that the highest grades were given by the youngest teaching population and the oldest, which was not expected given that the oldest population found it most difficult to adapt to a completely different reality during classes. Professors aged 40 to 60, which is the largest number in the sample, rated the online process as four. (Chart 10).

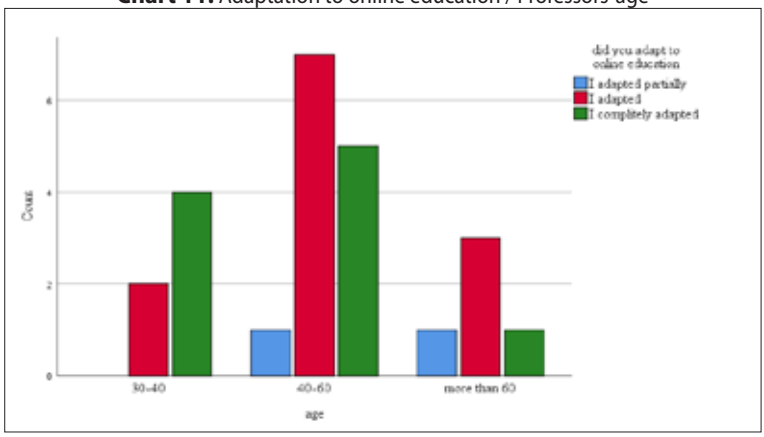
Chart 10. Quality of online education / Professors' Age



Source: Author's work

In response to the question whether only the youngest professors have adapted to online teaching, they answered without hesitation that they have completely adapted, while the largest number of middle-aged and older professors answer only in the affirmative to this survey question. (Chart 11)

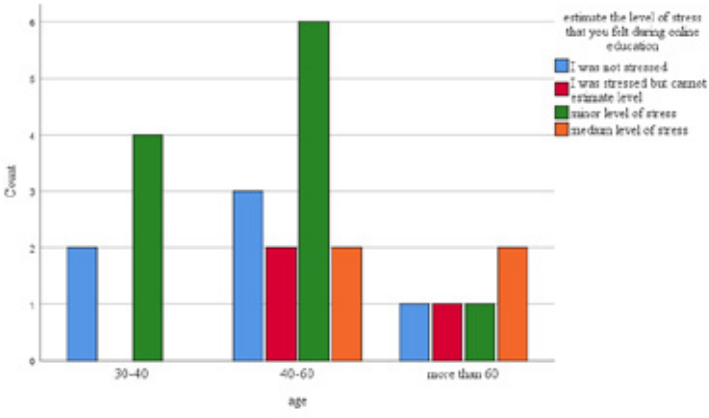
Chart 11. Adaptation to online education / Professors' age



Source: Author's work

A similar situation is shown by this research during the crossing of stress levels and the age of the professor. The minimum level of stress is noticeable in the youngest and middle generation of professors, while the average level of stress is most intense in professors over 60 years of age. (Chart 12)

Chart 12. Level of stress / Professors' age

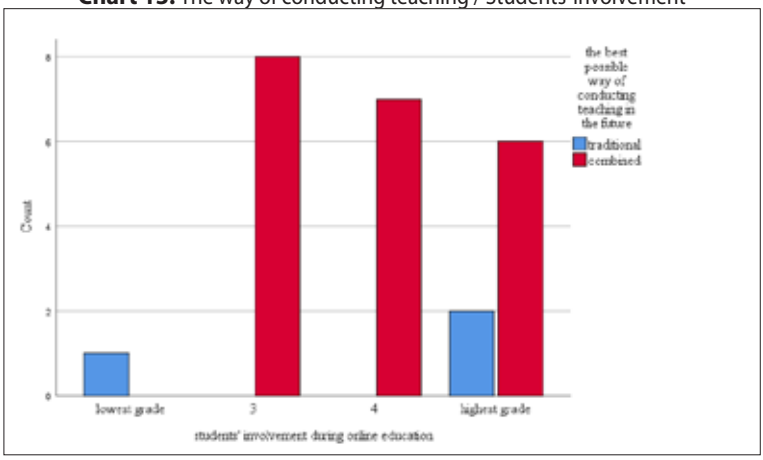


Source: Author's work

It is noticeable that the professors who rated the student engagement with the highest grades (3,4,5) were unanimous for the combined way of working in the future, except for a small percentage who rated online teaching with a grade of 5 (highest

grade), but believe that traditional teaching would also be a good choice. Professors who rated the work of students with the lowest grade believe that the traditional way of working is the only right way to educate students. (Chart 13).

Chart 13. The way of conducting teaching / Students' involvement



Source: Author's work

RESULTS AND DISCUSSION

Proving the first special hypothesis - online teaching is better than teaching conducted in the traditional way before the pandemic, the answers of respondents were used to assess the quality of teaching during the pandemic, the question Assessing the quality of online teaching during the pandemic, students and professors offered option number five, high quality, in percentages of 47.3% and 50%. Expressing an opinion on the claim that online teaching is better than distance learning, most professors and students partially agree in the statement that online teaching is better than classroom teaching, teachers in the percentage of 62.5%, and students 38.5%. While none of the professors fully agree with this statement, 12.4% of students have no dilemma about it, and 7.5% of students and 4.2% of professors answered that they cannot evaluate this statement. This confirmed the first special hypothesis.

Second special hypothesis - students and professors have adapted well to all the challenges of online teaching is confirmed by this research, because professors and students are unanimous in the answer that they have adapted, half of the professors and 36.3% of students. 35.4% of students and 41.7% of professors answered that they have fully adapted to the new reality in the educational process. None of the professors answered that they did not adapt, or I do not know, unlike the students, of whom 12.4% opted for one of these two answers.

The third special hypothesis - online teaching has increased the level of stress and engagement of professors and students. This research confirmed partially. Students believe that the engagement of their professors was at an extremely high level during online classes, as many as 61.9% of them. In contrast, professors rated the involvement and effort of students in an equal percentage, 33.3% rated them with grades 5 and 3, and 4.2% of professors opted for the lowest level of engagement, i.e., grade 1.

Also, the attitudes obtained by this research are contradictory when it comes to the answer to how much time online teaching took away from them compared to the traditional way of working. The highest percentage of students 44.7% answered less time, and 28.8% of them incomparably less time, while half of the professors answered more time, 29.2% equally time, and 16.7% incomparably more time. None of the professors answered incomparably less time, and only 4.2% less time. Obviously, the results show increased engagement and more time used to prepare and conduct online classes for professors, and thus stress levels, while students spent less time and had less engagement and stress during the teaching period in a pandemic. The answers that also confirm these results are the answer to the question to state the main reason for the increased stress. Identical percentage of professors, 37.7% state that the cause of that is too many obligations and tasks and the Covid-19 virus and limited movement. 48.7% of students answered that there was no reason for stress, for 16.8% the Covid-19 virus and limited movement are the main reasons for increased stress.

The fourth special hypothesis - according to the opinion of students and professors, the best way of teaching is the combined way, this research confirmed. Professors and students are united in the view that the best way to hold classes in the future is a combined way, with professors as much as 87.5% and with students 60.6%. What the answers of the respondents show, and it is very interesting, is the fact that none of the professors decided for online teaching, and only 12.5% for the traditional way of education. 22.6% of students voted for online teaching, and 16.8% for the classroom, i.e., the traditional way of educational process.

CONCLUSION

Proving completely three set special hypotheses and partial confirmation of one special hypothesis, this research also confirmed the general hypothesis, which claims that students and professors have adapted well to online teaching, which they claim is better than traditional, but they do not consider it the best way to teach. The research is significant primarily because of the small number of this type of research that shows the first experiences and opinions of academic staff and students gained during online teaching. Its limitation is a relatively small sample, and certainly such or similar research should be done at the entity level, i.e. to include all or most of the institutions of higher education. The biggest contribution of this research is the indicator that online teaching for professors was much more stressful and demanding than for students and that attention should be directed in that direction. Citing the main reason for the increased stress, most professors state that the cause of that is too many obligations and tasks, and the Covid-19 virus and limited movement. half of the professors answered more time, and 16.7% incomparably more time (Allam, Hassan, Mohideen, Ramlan, & Kamal, 2020). The biggest problem is the lack of procedures for conducting online classes and assessing learning outcomes, which was a serious problem for them, given that the design of curricula did not in any way adapt to a completely new way of working and evaluating student engagement. It is necessary to modernize the curriculum as soon as possible and make it easier for professors to plan, conduct and assess in accordance with the requirements of online or blended teaching. Some professors had little experience and training for online education before the COVID pandemic, which posed an additional challenge due to

a lack of experience in online learning, as shown by research conducted worldwide (Bao, 2020).

Unlike some research conducted among the student population that showed higher levels of stress and anxiety, both the consequences of lockdown and the pandemic (Wang & Zhao, 2020) this research shows that students did not have major problems and stress. The main problem is the pandemic and the inability to move, and only then too many tasks and obligations, and poor internet connection. The unfamiliar environment of online learning from home through various applications was not a big problem for the respondents of this research, but the fact is that some previous research shows that it can affect their final results (Bayram & Bilgel, 2008). It is necessary to equip them with the necessary skills and knowledge about network applications that are necessary for them to move to online learning or combined, for which most of them have declared themselves.

Timely feedback on the professor-student relationship is a very important segment of the learning process. A very important segment of online learning is the availability of assessments and timely feedback to students online (Doucet, Netolicky, Timmers, & Tuscano, 2020). Higher education institutions must adapt their resources to the needs of online learning, i.e., combined work, because the fact is that the COVID-19 pandemic irreversibly changed the learning process and regardless of the further course of the pandemic, there is no return to the situation before the virus appeared.

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