STUDENTS SATISFACTION WITH INTERACTION AND COMMUNICATION DURING ONLINE CLASSES IN THE COVID-19 PANDEMIC

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Abstract

Covid-19 has undoubtedly affected all segments of human life, and thus education. Teachers and students around the world have faced a great challenge: to switch to various forms of online teaching through different platforms in the shortest possible time. Because teaching was thus forced rather than freely chosen, various factors influenced how successful online teaching would be. As one of the key elements of good and quality teaching, Meyer cites the establishment of good communication between teachers and students (Meyer, 2005). In this paper, we have examined the differences in student satisfaction with interaction and communication regarding online teaching during the Covid-19 pandemic depending on the academic achievement in their studies and the study year. We have started from the assumption that certain differences exist between the given variables. Total of 356 students of the Faculty of Medicine in Foča participated in the research. The obtained results show that there are differences in students' satisfaction with interaction and communication during online classes depending on the study year ($X^2 = 30,721$, with $p = 0,000$), students in the second study year have the least satisfaction with interaction and communication during online classes, while students in the sixth year show the highest satisfaction. The second part of the results says that there are no differences in students' satisfaction with interaction and communication during online teaching depending on the academic success they achieve during their studies.

Key words: *interaction and communication, online teaching, Covid-19 pandemic*

1. INTRODUCTION

The Covid-19 pandemic has affected the entire education system around the world and brought about major changes in the organization and delivery of teaching. The closure of educational institutions at all levels has called into question the position of both professors and students in the teaching process. They were forced to switch to various types of e-learning as soon as possible. Although online learning has proven useful in protecting the health of students and colleges in the midst of the COVID-19 pandemic, it is not as effective as traditional learning(Muhammad, Anwar, 2020).E-learning can be considered as any "teaching process supported by information and communication technology, or learning that takes place via the Internet" (Funda, Franić, Večei-Funda, 2015, p.102).Communication is the transmission of a message from one person to another, so that they can understand it and check it in the discussion and, if necessary, act on it (Vilotijević, 2001, p.315). One form of e-learning is *online* learning, which gained special importance during the Covid-19 pandemic. *Online* learning can simply be defined as "a system in which learning resources, including the teacher himself/herself, are available to students online" (Dukić, Mađarć, 2012, p. 70.). One of the advantages of online learning is the choice of one's own pace of progress, ways and times of learning, as well as the use of modern technology (Kalamaković, Halaši i Kalamaković, 2013), while the main weakness of online teaching is the lack of personal contact between learning participants (Kalamaković, et al.) as well as technical and technological limitations - lack of digital competencies, the workload of the system, and the most prominent among them would be: poorer interaction with professors, lack of practical exercises, and unfavorable conditions for socialization (Pavlović, Ivanišević,Radišić,Lošonc 2021). In online distance learning, teaching takes place with the help of computers where students and professors are separated, and thus there has been a change in communication and interaction between students and professors. The organization of distance teaching has conditioned that professors and students are not in the same locations, that the acquisition of knowledge is organized through online teaching, and that the

interaction is done with the help of computers and different platforms. This type of interaction is called *Computer-mediated communication* (CMC), and includes various forms of synchronous and asynchronous interactions(Babić, Vunarić, Lokas-Čošković, 2017).Online learning via video conferencing, etc. is the most common example of synchronous distance education, where the interaction between professors and students takes place in real time, which means that participants are spatially separated, but not temporally. Synchronous communication and interaction is primarily important for student motivation, students receive additional explanations from the professor, can exchange opinions with colleagues and receive immediate feedback. Also, interaction during classes in which the professor does not see his/her student can be difficult. If during the lecture there are questions asked, the professor must stop to read the question and give an answer, but does not see the simultaneous reaction of the student to his/her answer in terms of facial expressions, gestures, body positions, which makes it difficult for the professor to understand whether the answer he/she offers is clear enough (Ibidem). Asynchronous communication does not require participants to be online at the same time, because each message remains recorded in the system, and everyone can see it whenever they want in different time frames (Ibidem).The very success of the educational process depends on the quality and success of communication between students and professors. Therefore, it is known that communication and interaction are important factors in the entire educational process, so our goal was to examine satisfaction of students with the communication and interaction regarding online teaching during the Covid-19 pandemic.

2. MATERIAL AND METHODS

Research topic

The COVID-19 pandemic has provided us with an opportunity to pave the way for the introduction of digital learning (Dhawan, 2020). Communication and interaction have always been valued in education, and received special emphasis during online teaching. Respect for the opinions of others is usually learned through interaction and is a key component of learning according to constructivist theories, learning theories as well as for encouraging students' attention. We believe that communication and interaction between professors and students has significantly changed through the application of online learning.

The aim of the research was to examine estimates of students' satisfaction with interaction and communication during online teaching in the Covid-19 pandemic.

Research tasks

1. To examine differences in students satisfaction with interaction and communication during online teaching in the Covid-19 pandemic depending on the academic achievement during their studies.
2. To examine differences in students satisfaction with interaction and communication during online teaching in the Covid-19 pandemic depending on the study year.

Research hypotheses

General hypothesis

1. We hypothesize that there are differences in students satisfaction with interaction and communication during online teaching in the Covid-19 pandemic

Specific hypotheses

1. We assume that there are differences in students' satisfaction with interaction and communication during online teaching in the Covid-19 pandemic depending on the academic achievement during their studies.
2. We assume that there are differences in students' satisfaction with interaction and communication during online classes in the Covid-19 pandemic depending on the study year.

Research variables

In this research, interaction and communication in online teaching will be treated as a dependent variable, while the success achieved during the study and the years of the study program will be treated as independent variables.

Research methods, techniques and instruments

In this paper, we used two methods, namely: the method of theoretical analysis and the method of empirical non-experimental research (survey method). In the research, we used assessment scales and surveys. Assessment scales were used to assess their own satisfaction with the quality of interaction and communication during online teaching. Surveying was another technique used. Since it was a matter of collecting data on sociodemographic data, data on gender and other characteristics, ie identification data on students, we decided to conduct a survey-questionnaire. For the purposes of the research, we used an instrument for examining student satisfaction with online teaching, which was constructed for the purposes of this research.

The questionnaire used in this research was independently constructed for the purposes of this research. The reliability of the instrument was checked by the Crombach-alpha coefficient, the discriminativity of each scale was checked by the Smirnov – Kolmogorl test, and the validity by the analysis of variance. The questionnaire consisted of 25 items related to the evaluation of the quality of online teaching (quality of organization of lectures and exercises, preparation of teachers for lectures, regularity of teaching, student attendance), evaluation and assessment of students during online teaching and evaluation of interaction and communication during online teaching. The part of the instrument related to the assessment of interaction and communication during online teaching is presented in this paper. For each item the student could choose the answer on a scale of 1. - I do not agree at all, 2. - I partially disagree, 3. - I do not agree or disagree, 4. - I partially agree, 5. - I totally agree. For example, we measured interaction and communication using items ("I am satisfied that professors provide an opportunity to engage in discussion during the online lecture." "During online classes, I regularly receive as useful information as I would in the classroom."

The reliability coefficients of the instrument by subscales are shown in Table 1.

Table 1. Instrument reliability coefficients by subscales for examining student satisfaction with online teaching

Subscales	**Crombach –alpha coefficients**
Quality of online teaching	0,85
Evaluation and assessment during online teaching	0,81
Interaction and communication during online teaching	0,90

Research sample

The research was conducted during the winter semester 2020/2021 at the Faculty of Medicine in Foca. Students from three study programs (Medicine, Health Care and Special Education and Rehabilitation) participated in the research. The total number of respondents was 356 students, including students of the second, third, fourth, fifth and sixth years of the mentioned study programs. The choice of the year of study was based on the classes during the summer semester 2019/2020, when due to the sudden expansion of the Covid-19 pandemic, classes were suspended at all higher education institutions and all students were forced to participate in online teaching. The first year students of the mentioned study programs was omitted, because it was only during the winter semester of the academic year 2020/2021 that they started teaching process and attending classes either in person or online.

Table 2. Sample structure regarding the academic achievement

		Frequency	Percent
Valid	6 - 7,5	16	4.2
	7.6 - 8,5	171	48.0
	8,6 - 9,5	143	40.2
	9,5 - 10	26	7.3
	Total	356	100.0

Table 3. Sample structure regarding the year of the study program

		Frequency	Percent
Valid	second	100	28.1
	third	81	22.8
	fourth	48	13.5
	fifth	79	22.2
	sixth	48	13.5
	Total	356	100.0

3. RESULTS

The first task of the research was to examine whether there were differences in student satisfaction with interaction and communication during online teaching in the Covid-19 pandemic depending on the academic success achieved during their studies. These differences were tested by Kruskal-Wallis test. Table 4.shows the results of differences in student satisfaction with interaction and communication depending on the academic achievement during their studies.

Table 4. Kruskal-Wallis test of differences regarding students' satisfaction with interaction and communication during online teaching depending on academic success

	Ranks					
	Average mark	**N**	**Mean Rank**	**Chi-Square**	**df**	**p**
Interaction and Communication	6 - 7,5	15	200.13	4.986	3	.173
	7.6 - 8,5	172	188.85			
	8,6 - 9,5	143	166.98			
	9,5 - 10	26	160.88			
	Total	356				

Based on the obtained data, we can conclude that there is no significant difference in student satisfaction with interaction and communication during online classes in the Covid-19 pandemic, depending on the academic achievement during their studies.

In order to see if there are individual differences among study programs, the table below shows the difference for each study program individually.

Table 5. Kruskal-Wallis test of differences between study programs

Medicine	**Average mark**	**N**	**Mean Rank**	**Chi-Square**	**df**	**p**
	6 - 7,5	9	155.00	7.861	3	.049
	7.6 - 8,5	128	157.23			
	8,6 - 9,5	126	133.45			
	9,5 - 10	23	117.65			
	Total	286				
Health Care	**Average mark**	**N**	**Mean Rank**	**Chi-Square**	**df**	**p**
	6 - 7,5	4	20.88	1.042	2	.594
	7.6 - 8,5	24	16.00			
	8,6 - 9,5	4	15.13			
	Total	32				
Special Education and Rehabilitation	**Average mark**	**N**	**Mean Rank**	**Chi-Square**	**df**	**p**
	6 - 7,5	1	17.00	2.864	3	.413
	7.6 - 8,5	18	15.92			
	8,6 - 9,5	12	17.71			
	9,5 - 10	3	26.33			
	Total	34				

Based on the presented results from the previous table, we can conclude that there is a statistically significant difference in the satisfaction of students of the study program Medicine with interaction and communication during online teaching depending on the academic achievement during their studies. The difference in satisfaction among students of the study program Health Care and the study program Special Education and Rehabilitation was not registered. The highest satisfaction was shown by students with an average grade of 7.6 to 8.5, followed by students with an average grade of 6 to 7.5, while the lowest satisfaction with interaction and communication during online classes was shown by students with an average grade of 9.5 to 10.

Another research task was to examine whether there was a difference in student satisfaction with interaction and communication during online teaching in the Covid-19 pandemic depending on the study year. Table 6. shows the results of the Kruskal-Wallis test of differences among students regarding satisfaction with interaction and communication during online classes depending on the study year.

Table 6. Kruskal-Wallis test of differences among students regarding satisfaction with interaction and communication during online classes depending on the study year

Ranks	Study year	N	Mean Rank	Chi-Square	df	p
Interaction and communication	second	100	130.73	38.809	4	0.000
	third	81	211.75			
	fourth	48	163.72			
	fifth	79	190.99			
	sixth	48	216.15			
	Total	356				

From Table 6. based on chi squares (X^2=38.809, with p=0.000)and its significance level, we conclude that there is a statistically significant difference in student satisfaction with interaction and communication during online teaching depending on the study year. The greatest satisfaction with interaction and communication during online classes was shown by students in the final years of study programs, while the least satisfaction was shown by second-year students. Considering that there is a difference in the duration of the included three study programs of the Faculty of Medicine in Foca, in the following table, we have shown the results of satisfaction with interaction and communication in online teaching depending on the year of the study program.

Table 7. Kruskal-Wallis test of differences regarding study programs

Study program Medicine	Study year	N	Mean Rank	Chi-Square	df	p
	second	69	85.39	54.546	4	.000
	third	65	179.67			
	fourth	27	128.04			
	fifth	78	152.60			
	sixth	47	172.57			
	Total	286				
Study program Health Care	**Study year**	**N**	**Mean Rank**	**Chi-Square**	**df**	**p**
	second	8	16.81	2.379	2	.304
	third	9	20.17			
	fourth	15	14.13			
	Total	32				
Study program Special Education and Rehabilitation	**Study year**	**N**	**Mean Rank**	**Chi-Square**	**df**	**p**
	second	22	18.50	4.267	2	.118
	third	7	11.07			
	fourth	5	22.10			
	Total	34				

Based on the presented research results, we conclude that the students of the study program Medicine show a significant difference in satisfaction with interaction and communication in online teaching (X^2 = 54.546, with p=0,000).Based on the average ranks, we conclude that the third, fifth and sixth year students show the greatest satisfaction with interaction and communication in online teaching, while second and fourth year students show low satisfaction with interaction and communication in online teaching. The obtained data show that students of the study programs Health Care and Special Education and Rehabilitation do not show different satisfaction with interaction and communication during online teaching.

4. DISCUSSION

Analyzing the obtained results, we concluded that our initial hypothesis was partially confirmed. Students of the study program Medicine showed different satisfaction with interaction and communication during online classes in the Covid-19 pandemic depending on the academic achievement during their studies and study years. The greatest satisfaction with interaction and communication during online teaching was shown by students achieving an average academic success of 7.6 to 8.5, while students achieving an average academic success of 9.5 to 10 showed the lowest satisfaction with interaction and communication during online teaching. When we talk about students' satisfaction with interaction and communication during online classes depending on the study year, the data showed that the hypothesis was also partially confirmed, i.e. that students in the second and fourth years of the study program Medicine showed the least satisfaction, while the third, fifth and sixth year students showed the greatest satisfaction with interaction and communication during online classes. The biggest difference in satisfaction was registered between the second and sixth year. The following questions can be posed from the results: Why were students achieving the greatest academic success within the same study program the least satisfied with the interaction and communication during online classes? And, on the other hand: Why did students in the final years of the study program (fifth and sixth year) show the greatest satisfaction with interaction and communication during online classes? It can be assumed that due to the longer educational experience gained during their studies, they are less critical of the teaching process, i.e. teaching competencies, since they have experience with most professors and more knowledge about how to organize and conduct regular classes. Students in the lower years of study neither have fully learned all aspects of the study yet, nor have gained experience that could provoke certain reactions. It is known that the quality of communication between professors and students is acquired during the implementation of teaching activities, so we can state this as one of the reasons why we got such results. The results of previous research show that the level of cooperation between first year students and professors is not as high as is the case with older students (Dumford & Miller, 2018, p. 460). It is known that during the teaching process the emphasis is on getting to know each other, respecting, talking, observing, listening, etc. The way in which professors communicate with students is an important factor affecting the very determination of teaching efficiency, and thus, the way students perceive teachers' communication can affect their learning, and the very feeling they acquire during learning (Sutiyatno, 2018).It is known that students' educational experience is transformed and changed in accordance with their progress from the first to the last year of study and thus their views on ways of learning can change(Rodriguez & Cano, 2007).Sng Bee (2012) obtained results in her research suggesting that good communication skills affect students' academic success. When it comes to academic achievement, it was found that student success had significant influence on the effects and the assessment of the quality of teaching, their satisfaction with the educational service at the faculty. Students achieving greater academic success during their studies place greater demands on professors and their way of working. We can also relate this to their approaches to learning. Previous research has found that students with a so-called deep approach to learning believe that teaching should be of better quality, goals and standards clearly set, while students with a surface approach to learning think that requirements are too high, that they are overloaded and that assessment is inadequate (Diseth et al., 2010; Ginns et al., 2007).It can be assumed that students who have a higher average grade in their studies are more satisfied with the implementation of teaching, which our results did not show. Students with higher academic success are more active in teaching and attend classes more regularly, which is associated with a greater

evaluation of the regularity of lectures and exercises as well as consultations. Success in lower years of study is more related to objective indicators of quality, and in higher years and levels of study with subjective assessments of teaching quality. Similar results were obtained in studies examining the effects of student achievement and their approach to learning on assessment and satisfaction with the educational experience(Biggs et al., 2001; Biggs & Tang, 2011; Cristina et al., 2010).Previous research has shown that warm interaction between students and professors has an impact on the learning process itself and higher academic achievement (Krstić, 2015), while the lack of appropriate interaction with professors is one of the main concerns associated with online teaching (Zhong, 2020). The experiences gained in our research and in previous researches will contribute to the improvement of the negative aspects of online teaching in the future and thus put student satisfaction on a higher level.

5. CONCLUSION

The research described in this paper has allowed us to see the satisfaction of medical students with the quality of interaction and communication in online teaching during the Covid-19 pandemic. Based on the presented research results, we can conclude that students' satisfaction with interaction and communication in online teaching is assessed differently by students. A statistically significant difference was registered in students of the study program Medicine depending on academic success and study year, while in students of the study programs Special Education and Rehabilitation and Health Care no significant differences were registered. The recommendation based on the obtained results would be to emphasize the improvement of interaction and communication between professors and students during the planning of future online teaching. The online environment at the faculty should stimulate student activity, mutual cooperation, communication and interaction with professors who will be directly the main actors in motivating students for active learning and progress in work.

These results also have implications for future research. Namely, if the research was conducted only on students of one faculty, it would be good to see the satisfaction of students with interaction and communication at other faculties in different fields. Given that we assessed student satisfaction based on one semester online teaching, it would be desirable to do research that would be based on a longer period of monitoring online classes. Since the results are based only on students' perspectives, including the opinion of professors in future studies could help to understand the problems faced by professors regarding online education.

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