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CHAPTER 28

FACE-TO-FACE OR ONLINE CLASSES? RETHINKING UNIVERSITY EDUCATION

Abstract: The global pandemic of COVID-19 has brought many challenges to the higher education. Faced with the problem, universities quickly changed the organization of teaching, moving from face-to-face forms to online teaching. As a result, numerous questions are raised about the relationship between face-to-face and online teaching, the acceptance of online teaching and the attitudes of key actors - students and teachers. In this context, the aim of the research is to examine the attitudes of students about face-to-face and online teaching, with reference to the possibility of teaching in the digital environment in the future. The basic research instrument was purpose-built based on a five-point Likert scale. The research sample consists of 211 students from the Faculty of Philosophy in Niš, Serbia. Descriptive statistics and F test were applied. The results obtained from the research indicate that the surveyed students still show a certain degree of reserve in relation to online studying, as well as scepticism about the possibility of combining face-to-face and online teaching as a possible way of organizing education at faculties. There are no statistically significant differences in relation to the independent research variables: year of study and average grade.

Keywords: *faculties, students, differences, face-to-face and online teaching, the COVID-19 pandemic*

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INTRODUCTION

The development of new technologies resulted in significant changes in the higher education process, including the possibility of online teaching, which offers new and interesting ways to innovate and push the boundaries of learning (Pavlovic & Stanisavljevic Petrovic 2017). When universities began to introduce the first online courses that supplemented or even replaced face-to-face teaching after the 2000s, education at universities took on a new meaning. Nonetheless, this phenomenon of university teaching modernization through new technologies was initially characteristic of more developed countries, which had the conditions and resources for equipment that was still insufficiently accessible at the time.

And, while universities initially introduced online courses for prestige and increased competitive advantage, due to the emergence of the global pandemic COVID-19, online teaching became a necessity and the only way to educate students all over the world in 2019. (Bączek et al. 2021; Shahzad et al. 2021). This situation created a number of challenges for universities in terms of implementing online teaching, particularly in countries that had no prior experience organizing teaching in a virtual environment (Markovic & Vujovic 2021). As a result, many questions about the implementation of online teaching, the barriers and difficulties that arise, including teacher strategies, the effects of education, and the benefits offered by the new educational environment, remain unanswered. As a result, there is a need for research into various aspects of online teaching, which has resulted in a number of studies over the last two years (Besser, Flett & Zeigler-Hill 2022; Chung, Subramaniam & Dass 2020; Marković et al. 2021). However, from the students' point of view, this issue has not yet been sufficiently explored. Given that online teaching is intended for students, it is critical to investigate their perceptions of face-to-face and online teaching in order to determine the students' perspectives on the differences in the domains of these two types of teaching.

THEORETICAL APPROACH

During the 2000s, a greater number of scientific research papers appeared in which online teaching was studied from various aspects (Nortvig, Petersen & Balle 2018). Some research, among other things, points to the differences that exist between face-to-face and online teaching (Shachar & Neumann, 2003; Smith, Smith & Boone 2000). In a study that was carried out during the 2000s (Smith, Smith & Boone 2000) it was determined that there are no significant differences in the use of face-to-face teaching methods and online learning. In a more extensive meta-analysis of studies published in the period from 1990 to 2002, it was concluded that learning in the environment has a greater number of positive sides, and that the

knowledge of students who attended online courses surpassed those who worked in a traditional, face-to-face environment (Shachar & Neumann 2003). Similarly, in an experimental study of the results achieved by participants of elective courses organized face-to-face and online, it was determined that participants of online courses achieve similar or better results, with the fact that students who attend online courses must constantly be active and involved in the teaching process, which is considered positive, because it affects the increase of their understanding of the concepts (Favretto, Caramia & Guardini 2005).

In comparison of face-to-face and online learning, according to one of the studies (Dabbagh & Nanna Ritland 2005), the characteristics of face-to-face learning environments are pointed out: a) location connection and presence of teachers and students; b) unfolding in real time; c) control by the teacher; d) linearity in teaching methods. However, the development of technique and technology has enabled changes related to the asynchrony of real-time communication, which makes online teaching more dynamic and exciting. The research conducted in 2006 provides interesting observations about face-to-face and online teaching from the students' perspective (Hannay & Newvine 2006). In the aforementioned study, it was discovered that students enrolled in both face-to-face and online courses preferred online courses over traditional, face-to-face class organization, stating that they learned more in online courses, devoted more time to these courses, and that these classes were more demanding and of higher quality than face-to-face ones (Hannay & Newvine 2006).

Online environments are thought to use a wide range of pedagogical practices, particularly those related to active learning and student-centeredness (Keengwe & Kidd 2010). In this context, the active positioning of students in online classes should be considered, as this can lead to improved student progress. However, student success is influenced not only by how classes are organized, but also by other factors that contribute to student success. There are several factors that contribute to student advancement in both face-to-face and online settings. Here, we should consider not only the strategies used by teachers, but also the direct participation of students and their interaction in classes as key differences between face-to-face and online teaching processes. In this context, a number of studies (Hurlbut 2018) show that students who attend face-to-face classes have access to a variety of opportunities and prospects for growth in their communities. In addition to this, significant differences can also be observed in the feedback provided by teachers, which can be crucial in shaping students' perceptions of the distinctions between these two types of teaching. Another significant difference can be seen in the classroom atmosphere, where online education may have advantages, as it takes place in an environment that is more pleasant for students and in conditions that can be considered more intimate and personal for the students themselves (Hurlbut 2018).

A 2015 study (Cummings, Chaffin & Cockerham 2015) at the University of Tennessee compared the educational outcomes of students attending face-to-face and online programs at the College of Social Work. It was determined that there are no significant differences between students who follow face-to-face and online classes. Nevertheless, certain findings suggest that noteworthy variations emerged in the mean grades of students. Specifically, students who participated in online classes achieved significantly higher grades and expressed greater satisfaction with faculty accessibility, support, and advisory services. In other research, it has also been confirmed that online classes can have some advantages, but also disadvantages related to engaging students (Dumford & Miller 2018). Namely, in the aforementioned research, it was determined that students who attended a larger number of online courses were more inclined to make quantitative conclusions, but were less inclined towards joint learning, interaction and discussion compared to colleagues who attend classes face-to-face. In this sense, it is stated that students who take online classes have a lower quality of interactions and show less willingness to engage in practice (Dumford & Miller 2018). A study conducted in Taiwan on a sample of 107 students at Indonesia Open University confirms that during online classes, student interaction is reduced (Bali & Liu 2018). This research examined how students perceive face-to-face and online teaching. The results of this research indicate that students prefer face-to-face forms of teaching, primarily because of personal presence, opportunities for social interaction and therefore show a higher degree of satisfaction. In the same survey, some of the students stated that it is very pleasant to learn online, because it opens up opportunities to learn in an innovative way using the means of new technology.

From 2019 onwards, there was an increase in the quantity of scientific and research publications on online teaching, which was influenced by social and epidemiological circumstances caused by the appearance and transmission of the COVID-19 virus. Because of the widespread nature of this disease, a huge number of universities were forced to hold classes online because no other option was available. As a result, numerous issues that were not addressed in previous research were reviewed, including university technical and technology equipment as well as teachers' and students' digital literacy. According to to the studies conducted at two top universities in Romania, higher education institutions are not well equipped for the new, online approach of organizing lessons (Coman et al. 2020). The referenced study looked into 762 students' perspectives of the benefits and drawbacks of online learning. According to the findings of this study, there are more pronounced downsides and a lower number of advantages cited by students than in earlier studies. Among the most serious issues with online education are teachers' lack of digital abilities and lectures that are not designed for the online setting. The lack of interaction and communication with teachers is a big disadvantage of online classes (Coman et al. 2020:12).

It is believed that despite the popularity of online education, many students are still far from accepting this way of studying (Radha et al. 2020). Namely, despite the growing popularity of online classes, when they have the opportunity, students generally choose the face-to-face teaching, because they believe that this form of learning is more realistic, provides opportunities for debates, reflections and discussions with teachers and colleagues. At the same time, almost all respondents pointed out that e-learning is useful, above all from the aspect of their future and the importance of digital skills in future employment (Radha et al. 2020: 1090).

The research of the variations in student motivation between face-to-face and online instruction provides intriguing results (Malinauskas & Pozeriene 2020). In the aforementioned study, data were collected from a sample of 386 university students, 192 of them completed online classes, demonstrating that students who took online classes had stronger internal motivation than their peers who had face-to-face classes. In contrast, a study that evaluated students' impressions of the differences between face-to-face teaching methodologies and e-learning discovered that the majority of respondents believed that face-to-face education could educate them more (Kumari et al. 2021).

The respondents' objections regarding online teaching are primarily related to the material for online lectures, which they believe is difficult to understand and that, accordingly, it was difficult to clarify some dilemmas in online teaching. As a positive side of online teaching in the mentioned research, the flexibility in teaching in terms of taking assignments and other materials that are delivered online is mentioned. However, in the end, it is concluded that no technology can replace face-to-face teaching, especially when it comes to skills in a field such as medicine, where live communication is of utmost importance for the success of students. In contrast, some research in the field of medical education indicates different results (e.g. Harrell et al. 2021). Namely, in the research of Harrell and associates (2021), the positive effects of an online course, which is based on videos on one of the online courses, are indicated. The data obtained from the evaluation of this course, even in the part of the practical exam, showed that the students were very satisfied, that the impressions of the entire course were positive, and that the students achieved better results on the tests. In essence, the authors conclude that online teaching can provide an effective alternative when work in a laboratory is not available.

In a study of changes in the academic performance of students resulting from the immediate introduction of online classes at the Faculty of Telecommunications in Madrid (Iglesias-Pradas et al. 2021), it was found that there was an increase in the academic progress of students who followed online teaching. However, despite these findings, it was found that there was no difference between face-to-face and online work. The reasons for this, according to the author, can be different and

related to organizational, as well as individual aspects related to students. According to the researchers, for the study of online teaching, and especially the progress of students, very important factors are related to the competences of teachers in terms of technology, institutional factors, digital tools that are used, as well as the skills of students to work in an online environment.

RESEARCH METHODOLOGY

The aim of the research is to examine students' attitudes towards face-to-face and online teaching in higher education. The Faculty of Philosophy of the University of Niš switched completely to online teaching in a short period of time after the outbreak of the COVID-19 pandemic. An effort was made to determine how students compare face-to-face and online teaching and how teaching at the faculty should be conducted in the future. 211 students of the Faculty of Philosophy in Niš (Serbia) participated in the research, whose attitudes were analysed in relation to year of study and average grade. A five-point Likert-type assessment scale was used to examine students' attitudes. The numbers on the rating scale ranged from 1 (strongly disagree), 2 (disagree), 3 (no opinion), 4 (agree) to 5 (strongly agree). The research was conducted online in the period from December 2020 to January 2021, with the help of a Google Forms questionnaire. The instrument created specifically for research purposes was sent to the e-mail addresses of students at the Faculty of Philosophy in Niš. After a month, an overview of the situation was made and the processing and analysis of research data began. The following research tasks were set in the research.

1. To determine whether students have more positive attitudes towards face-to-face versus online teaching in higher education;

2. To determine whether the year of study of students affects their attitudes about face-to-face versus online teaching;

3. To determine whether the average grade of students affects their attitudes about face-to-face versus online teaching.

The research data were processed in the statistical data processing program SPSS 26. The statistical procedures used were descriptive statistics, and the F test for examining differences in students' attitudes in relation to year of study and average grade. The research data are presented in tabular form, and their analysis is presented in the text.

ANALYSIS OF RESEARCH RESULTS

Table 1 shows the average answer (M), the deviation from the arithmetic mean (SD), as well as the percentage of respondents who agree/disagree with the mentioned items.

Table 1. Descriptive statistics

Items	**M**	**SD**	**1**	**2**	**3**	**4**	**5**
I believe that after the pandemic it will be difficult to fully return to face-to-face teaching	3.13	1.35	12.8	27.0	14.2	26.5	19.4
I believe that face-to-face and online teaching should be combined in the future	1.73	1.07	20.9	23.2	15.2	22.7	18.0
The faculty should, in addition to preparing for a specific profession, also work on improving students' digital competencies	3.97	1.03	3.8	3.8	19.9	36.5	36.0
There are no significant differences between face-to-face and online classes	1.80	0.92	44.5	40.3	6.6	8.1	0.5
For successful studying, it is necessary to combine face-to-face and online teaching	2.78	1.31	22.3	21.3	23.2	22.3	10.9
I believe that face-to-face teaching is irreplaceable	3.77	1.27	7.1	13.3	12.3	30.3	37.0
I believe that in the future we should completely switch to online teaching	1.73	1.07	57.8	23.7	9.0	6.2	3.3

The analysis of the average answer (M) shows that the surveyed students are undecided when evaluating the claim that *For successful studying it is necessary to combine face-to-face and online teaching* (M-2.78) and that *After the pandemic it will be difficult for them to fully return to face-to-face teaching* (M-3.13). The respondents express a certain degree of disagreement with the items *I believe that face-to-face and online teaching should be combined in the future* (M-1.73), *There are no significant differences between face-to-face and online teaching* (M-1.80) and *I believe that in the future we should completely switch to online teaching* (M-1.73). Somewhat more positive attitudes are expressed by the students towards the claims that *The faculty should also work on improving students' digital competencies* (M-3.97) and *I think that face-to-face teaching is irreplaceable* (M-3.77).

Table 2. Statistically significant differences in relation to the year of study

	Year of study	M	SD	F	df	p
I believe that after the pandemic it will be difficult to fully return to face-to-face teaching	I	3.31	1.225	0.560	3	0.642
	II	2.97	1.244			
	III	3.16	1.417			
	IV	3.22	1.475			
I believe that face-to-face and online teaching should be combined in the future	I	3.15	1.377	0.237	3	0.870
	II	2.89	1.400			
	III	2.90	1.376			
	IV	2.94	1.557			
The faculty should, in addition to preparing for a specific profession, also work on improving students' digital competencies	I	4.00	0.938	0.237	3	0.870
	II	3.99	0.847			
	III	3.89	1.079			
	IV	4.04	1.245			
There are no significant differences between face-to-face and online classes	I	1.88	1.071	0.594	3	0.620
	II	1.69	0.744			
	III	1.89	1.049			
	IV	1.78	0.887			
For successful studying, it is necessary to combine face-to-face and online teaching	I	3.00	1.265	0.439	3	0.726
	II	2.68	1.254			
	III	2.84	1.358			
	IV	2.74	1.382			
I believe that face-to-face teaching is irreplaceable	I	3.58	1.332	0.542	3	0.654
	II	3.90	1.235			
	III	3.76	1.304			
	IV	3.68	1.269			
I believe that in the future we should completely switch to online teaching	I	1.88	1.243	1.395	3	0.246
	II	1.56	0.886			
	III	1.90	1.201			
	IV	1.70	1.035			

Based on the analysis of the p value shown in Table 2, it is concluded that the variable *year of study* does not have a statistically significant effect on the students' attitudes towards face-to-face and online teaching. The students of all years of study (I, II, III and IV) are undecided about agreeing with the statements *I think that after the pandemic it will be difficult to fully return to face-to-face teaching*, *I think that face-to-face and online teaching should be combined in the future* and *For successful studying it is necessary to combine face-to-face and online teaching*. They expressed a

slightly higher degree of agreement with the statements *The faculty should, in addition to preparing for a specific profession, work on improving students' digital competences* and *I believe that face-to-face teaching is irreplaceable*, while they mostly disagree with the statements *There are no significant differences between face-to-face and online teaching* and *I believe that in the future we should completely switch to online teaching*.

Table 3. Statistically significant differences in relation to the average grade during studies

	Average grade	M	SD	F	df	p
I believe that after the pandemic it will be difficult to fully return to face-to-face teaching	6.0-6.9	2.33	1,155	2.679	3	0.048
	7.0-7.9	3.55	1,405			
	8.0-8.9	3.06	1,390			
	9.0-10.0	2.81	1,209			
I believe that face-to-face and online teaching should be combined in the future	6.0-6.9	1.00	0.000	3.455	3	0.018
	7.0-7.9	2.95	1.311			
	8.0-8.9	3.14	1.493			
	9.0-10.0	2.60	1.346			
The faculty should, in addition to preparing for a specific profession, also work on improving students' digital competencies	6.0-6.9	3.67	1.155	0.271	3	0.847
	7.0-7.9	4.02	0.976			
	8.0-8.9	3.94	1.045			
	9.0-10.0	4.06	1.092			
There are no significant differences between face-to-face and online classes	6.0-6.9	1.88	1.071	0.594	3	0.620
	7.0-7.9	1.69	0.744			
	8.0-8.9	1.89	1.049			
	9.0-10.0	1.78	0.887			
For successful studying, it is necessary to combine face-to-face and online teaching	6.0-6.9	3.00	1.265	0.439	3	0.726
	7.0-7.9	2.68	1.254			
	8.0-8.9	2.84	1.358			
	9.0-10.0	2.74	1.382			
I believe that face-to-face teaching is irreplaceable	6.0-6.9	3.58	1.332	0.542	3	0.654
	7.0-7.9	3.90	1.235			
	8.0-8.9	3.76	1.304			
	9.0-10.0	3.68	1.269			
I believe that in the future we should completely switch to online teaching	6.0-6.9	1.88	1.243	1.395	3	0.246
	7.0-7.9	1.56	0.886			
	8.0-8.9	1.90	1.201			
	9.0-10.0	1.70	1.035			

Based on the analysis of the p value shown in Table 3, it is concluded that the variable *average grade* during studies has a statistically significant effect on the students' attitudes only according to the claim that *after the pandemic it will be difficult for the faculty to fully return to face-to-face teaching*, as well as the claim *I believe that face-to-face and online teaching should be combined in the future*. For the item *I believe that after the pandemic it will be difficult to fully return to face-to-face teaching*, the calculated value of the LSD Post Hoc test shows that there is a statistically significant difference in the answers of the respondents between those who have an average grade of 7-7.99 and those with an average grade of 9-10. For the item *I think that face-to-face and online teaching should be combined in the future*, the calculated value of the LSD Post Hoc test shows that there is a statistically significant difference in the answers of the respondents between all categories of students (i.e. 6-6.9 compared to 7-7.9 and 8-8.9; 7-7.9 vs. 6-6.9 etc.).

DISCUSSION OF RESULTS

The results obtained from the research indicate that the surveyed students, although during the COVID-19 pandemic they followed classes exclusively online, still show a certain degree of reserve in relation to online studying. Namely, a greater number of the respondents were in doubt when evaluating the claims related to the differences between face-to-face and online teaching. This is supported by the results that indicate the student's skepticism about the possibility of combining face-to-face and online teaching (M-2.78), as a possible way of organizing education at faculties. The reason for this may be insufficient preparation and numerous difficulties that initially accompanied the organization of online classes, both in terms of organization and in terms of the development of digital competences, which emerged as one of the difficulties. In this context, the results correspond to the picture that the students were surprised by the changed way of organizing classes, that is, they were not adequately prepared, which caused many difficulties related to work in a digital environment. Similar data were obtained by the authors who conducted research in countries where online teaching was not used before the COVID-19 pandemic and who rightly point to the insufficient and inadequate preparation of students (Coman et al. 2020).

The survey showed that respondents do not agree with the statements related to possible hybrid ways of organizing teaching in the future (M-1.73), and that they see face-to-face and online teaching as completely separate ways of teaching, which are difficult to combine. In this context, there is noticeable disagreement with the statement that there are no significant differences between face-to-face and online teaching (M-1.80), which is a consistent continuation of thinking that it is about two ways of organizing teaching, which are completely different. Basically,

the respondents positively evaluate the statement *I believe that face-to-face teaching is irreplaceable* (M-3.77), which is similar to the results of some other research (Kumari et al. 2021; Radha et al. 2020). In contrast to such results, other studies have shown that online teaching has its advantages, and that there are no major differences between face-to-face and online teaching (Iglesias-Pradas et al. 2021; Harrell et al. 2021).

The respondents in our research expressed a greater degree of agreement with the statements related to better preparedness of students for the online way of working and training in the field of digital competence development (M-3.97). This indicates their insufficient readiness to work in a digital environment and, in general, issues related to the development of digital competences. Given the uncertainty they show in the field of digital competence, their disagreement with the claims related to the organization of teaching in the future, that is, that teaching at faculties could be organized digitally, is understandable (M-1.73). Accordingly, they clearly have positive attitudes towards the claims that the faculty should also work on improving the digital competencies of students (M-3.97).

In relation to the independent research variables, the results show that there are generally no statistically significant differences, which is the case when examining the influence of variables *year of study* and *average grade*. These results indicate that the mentioned independent variables do not significantly influence the formation of the respondents' attitudes in relation to their understanding of face-to-face and online teaching. Namely, the variable year of study is not a significant factor that influences the formation of students' attitudes, which can be understood considering the fact that the variable refers to the population of young people who are of a similar age, because the difference in age between first- and fourth-year students is very small. For this reason, it is understandable that they see and evaluate various issues in a similar way, including those related to the organization of teaching at faculties. Smaller differences are noticeable in the statements related to the differences between face-to-face and online classes, where younger respondents show a higher degree of indecision, which is realistic, because these respondents, mostly first-year students, did not have the opportunity to follow for longer period of time face-to-face classes on faculties, and therefore cannot compare these two types of teaching. The average study grade, as a variable in our research, showed the existence of statistically significant differences only in relation to two statements: *I think that after the pandemic it will be difficult to fully return to face-to-face teaching* and *I think that face-to-face and online teaching should be combined in the future*. Namely, for these two items, the results unequivocally indicate that regardless of the average grade, the students believe that the introduction of hybrid, i.e. combining face-to-face and online teaching in the future is not the best solution.

CONCLUSION

The COVID-19 pandemic has undoubtedly had a significant impact on changes in higher education, particularly in the organization of the teaching process. Because it was not possible otherwise, the transition from face-to-face teaching organization to online caused numerous doubts and dilemmas among all stakeholders, particularly teachers and students. Many difficulties arose in such circumstances, which was typical of the countries such as Serbia, which had no prior experience with teaching in a digital environment. In this context, new questions about acceptance and preparation for this type of teaching have arisen, particularly among the main actors - teachers and students.

In our research, students' attitudes about online teaching were investigated, both in the light of comparison with face-to-face teaching, and in terms of thinking about the future of university education in terms of the introduction of hybrid or complete online teaching. The results of the research indicate that students are quite cautious when it comes to online teaching, that they are skeptical about the possibility of introducing hybrid teaching and that they view the complete transition to online teaching negatively. The reasons that led to this attitude are also indicated by some other items related to insufficient preparation for such a sudden transition to online teaching, as well as inadequate digital competence. It is interesting that the results of the research are quite consistent, and that there are almost no statistically significant differences in relation to the independent variables of the research.

Regardless of the current shortcomings, which are reflected in the small number of respondents and the local nature of the research, we believe that this work can be significant, especially given the unique social circumstances in which it was conducted, the end of the pandemic and the return of students to amphitheaters and classrooms. Furthermore, the work can serve as a good starting point for more extensive research on the topic of online teaching.

REFERENCES

Bączek, M., Zagańczyk-Bączek, M., Szpringer, M., Jaroszyński, A., & Wożakowska-Kapłon, B. (2021). "Students' perception of online learning during the COVID-19 pandemic: a survey study of Polish medical students". *Medicine*, 100(7). https://doi.org/10.1097/MD.0000000000024821

Bali, S., & Liu, M. C. (2018). "Students' perceptions toward online learning and face-to-face learning courses". *Journal of Physics: Conference Series*, 1108(1), e012094. https://doi.org/ 10.1088/1742-6596/1108/1/012094

Besser, A., Flett, G. L. & Zeigler-Hill, V. (2022). "Adaptability to a sudden transition to online learning during the COVID-19 pandemic: Understanding the

challenges for students". *Scholarship of Teaching and Learning in Psychology*, 8(2), 85-105. https://doi.org/10.1037/stl0000198

Chung, E., Subramaniam, G. & Dass, L. C. (2020). "Online learning readiness among university students in Malaysia amidst COVID-19". *Asian Journal of University Education*, 16(2), 45-58. https://doi.org/10.24191/ajue.v16i2.10294

Coman, C., Țîru, L. G., Meseșan-Schmitz, L., Stanciu, C. & Bularca, M. C. (2020). "Online teaching and learning in higher education during the coronavirus pandemic: Students' perspective". *Sustainability*, 12(24), 10367. https://doi.org/10.3390/su122410367

Cummings, S. M., Chaffin, K. M. & Cockerham, C. (2015). "Comparative analysis of an online and a traditional MSW program: Educational outcomes". *Journal of Social Work Education*, 51(1), 109-120. https://doi.org/10.1080/10437797.2015.977170

Dabbagh. N. & NannaRitland, B. (2005). *Online learning: Concepts, strategies and application*. New Jersey, NJ: Upper Saddle River.

Dumford, A. D. & Miller, A. L. (2018). "Online learning in higher education: exploring advantages and disadvantages for engagement". *Journal of Computing in Higher Education*, 30(3), 452-465. https://doi.org/10.1007/s12528-018-9179-z

Favretto, G., Caramia, G. & Guardini, M. (2005). "E-learning measurement of the learning differences between traditional lessons and online lessons". *European Journal of Open, Distance and E-learning*, 8(2).

Hannay, M. & Newvine, T. (2006). "Perceptions of distance learning: A comparison of online and traditional learning". *Journal of Online Learning and Teaching*, 2(1).

Harrell, K. M., McGinn, M. J., Edwards, C. D., Warren Foster, K. & Meredith, M. A. (2021). "Crashing from cadaver to computer: Covid-driven crisis-mode pedagogy spawns active online substitute for teaching gross anatomy". *Anatomical Sciences Education*, 14(5), 536-551. https://doi.org/10.1002/ase.2121

Hurlbut, R., A. (2018) "Online vs. traditional learning in teacher education: a comparison of student progress". *American Journal of Distance Education*, 32(4), 248-266. https://doi.org/10.1080/08923647.2018.1509265

Iglesias-Pradas, S., Hernández-García, Á., Chaparro-Peláez, J. & Prieto, J. L. (2021). "Emergency remote teaching and students' academic performance in higher education during the COVID-19 pandemic: A case study". *Computers in human behavior*, 119, 106713. https://doi.org/10.1016/j.chb.2021.106713

Keengwe, J. & Kidd, T. T. (2010). "Towards best practices in online learning and teaching in higher education". *MERLOT Journal of Online Learning and Teaching*, 6(2), 533-541.

Kumari, S., Gautam, H., Nityadarshini, N., Das, B. K. & Chaudhry, R. (2021). "Online classes versus traditional classes? Comparison during COVID-19".

Journal of Education and Health Promotion, 10, 457. https://doi.org/10.4103/jehp.jehp_317_21

Malinauskas, R. K. & Pozeriene, J. (2020). "Academic motivation among traditional and online university students". *European journal of contemporary education*, 9(3), 584-591. https://doi.org/10.13187/ejced.2020.3.584

Marković, M., Pavlović, D. & Mamutović, A.(2021). "Students' experiences and acceptance of emergency online learning due to COVID-19". *Australasian Journal of Educational Technology*, 37(5), 1-16. https://doi.org/10.14742/ajet.7138

Markovic, M., Vujovic, M. (2021). "Online teaching as a response of a higher education institution to crisis caused by COVID-19". *eLearning and Software for Education: Education & Technology in (Post)pandemic times*, 1, 219-227. https://doi.org/10.12753/2066-026X-21-029

Nortvig, A. M., Petersen, A. K. & Balle, S. H. (2018). "A Literature Review of the Factors Influencing E-Learning and Blended Learning in Relation to Learning Outcome, Student Satisfaction and Engagement". *Electronic Journal of E-learning*, 16(1), 46-55.

Pavlovic, D., Stanisavljevic Petrovic Z. (2017). "Potential and Limitations of the Internet Use in Learning Process". *Bulgarian J. Science & Education Policy,* 11 (2), 220-232.

Radha, R., Mahalakshmi, K., Kumar, V. S. & Saravanakumar, A. R. (2020). "E-Learning during lockdown of COVID-19 pandemic: A global perspective". *International journal of control and automation*, 13(4), 1088-1099.

Shachar, M. & Neumann, Y. (2003). "Differences between traditional and distance education academic performances: A meta-analytic approach". *International Review of Research in Open and Distributed Learning*, 4(2), 1-20. https://doi.org/10.19173/irrodl.v4i2.153

Shahzad, A., Hassan, R., Aremu, A. Y., Hussain, A. & Lodhi, R. N. (2021). "Effects of COVID-19 in E-learning on higher education institution students: the group comparison between male and female". *Quality & Quantity*, 55(3), 805-826. https://doi.org/10.1007/s11135-020-01028-z

Shan, R., Mrityunjay, K., Sharma, I. & Choudhary, S. (2022). "Evaluation of Online Classes Versus Traditional Classroom Teaching among First Year MBBS Students during COVID-19 Pandemic in GMC Jammu". *Indian Journal of Public Health Research and Development* 13(3), July-september, 261-264.. DOI:10.37506/ijphrd.v13i3.18210

Smith, S. B., Smith, S. J. & Boone, R. (2000). "Increasing access to teacher preparation: The effectiveness of traditional instructional methods in an online learning environment". *Journal of Special Education Technology*, 15(2), 37-46.