Considerations for University Pedagogy: Distance Learning One Year After the Covid-19 Pandemic Outbreak

Katerina Kedraka[1], Christos Kaltsidis[1], Natassa Raikou[2], Thanassis Karalis[2]

[1]Democritus University of Thrace, Greece

[2]University of Patras, Greece

Correspondence: Christos Kaltsidis, Democritus University of Thrace, Greece.

Abstract

Due to the recent outbreak of the COVID-19 pandemic, the institutions of higher education had to transform their educational function from face-to-face to e-learning. The purpose of this study is to examine the effects of e-learning and the consequent disruption of the traditional educational function in higher education in Greece with special reference to the views of undergraduates compared to those of their peers collected via the same method and tool one year earlier in two regional Greek Universities, the University of Patras and the Democritus University of Thrace. The present research was conducted in May 2021 in order to explore students' views and feelings one year after the sudden and total transition to online teaching during the pandemic. The results suggest that students seem to prefer face-to-face courses, but they provide interesting aspects regarding e-teaching and learning -thus valuable guidelines for higher educational institutions in developing didactic approaches, to motivate students on their academic pathway, emphasizing the necessity of University Pedagogy.

Keywords: university pedagogy, COVID-19 pandemic, distance learning

1. Introduction

As in most areas of social life, the impact and side effects of the COVID-19 pandemic on education were impressive. In the field of education, for all levels (from pre-primary to higher education) and types (formal, non-formal and informal education) it was certainly the wider disruption in the history of humankind because this is the first such large-scale pandemic, after the massification of education and especially higher education (UNESCO, 2020b). After the 1960s in many countries, the access to higher education is multiplying something that leads to the need for a different organization of studies in higher education (Raikou, 2012; Raikou & Karalis, 2016; Toka & Gioti, 2021). Among others, this led to the development of a new field in the Sciences of Education, that of Higher or University Pedagogy, or Teaching and Learning in Higher Education (Kedraka & Rotidi, 2017). In non-formal education in Western countries, however, participation of the adult population in educational activities seems to be on the rise, even in countries with relatively low participation rates, so pandemic had also consequenced to adult education and training activities leading to the disruption of educational programs addressed to adults worldwide (Karalis, 2017). Even though vaccines were available soon enough, which led to a reduction in the spread and allowed the gradual resumption of several activities, the period that the school structures remained closed was very long.

After about two years, it seems that the wider disorder caused by the COVID-19 pandemic is now beginning to de-escalate. According to its latest data UNESCO (2020a) estimates that at the onset of disruption this affected (mid-April 2020) about 1,3 billion students, which is around 80% of total enrolled learners in more than 150 countries. About two years later, the situation gradually de-escalated so as just 40 million students, less than 2,5% of total enrolled students in about 10 countries continued to stay outside schools. The duration of this crisis also differed from country to country. While only in Iceland is the reported duration for this disruption shorter than ten weeks, in some countries (North and South America) the duration was greater than forty weeks.

On the aforementioned disruption around the world, many researchers worldwide published research on the impact of the pandemic on educational systems, but also on teaching methods and techniques. Bond, Bedenlier, Marin, and

Handel (2021) in their seminal work recorded 282 primary empirical studies for higher education during the initial semester of educational disruption leading to 256 articles published in 155 unique journals. In their conclusions Bond et al. emphasize that most studies focused on students' perceptions concerning the swift to online teaching mainly through surveys and not through other possible dimensions (e.g., grade differences or changes in study performance). At the very first period, the educational technology most widely used was that of synchronous collaboration tools to simulate the traditional face-to-face communication to any possible extent. In another study, Kara (2021) found that globally most higher education institutions demonstrated agility and resilience during the pandemic, concluding to a continuation of student learning. An extended literature review for the consequences of the pandemic in higher education institutions, putting an emphasis on what happened in Greece can be found in Karavas & Liontou (2022).

As widely accepted in the relevant literature after crises we do not return to what existed before and which we are accustomed to calling normality. A new reality is emerging, a reality that includes in a hybrid and transitional form features of the pre-crisis era, but also dimensions and effective solutions that emerged during the crisis. "Lessons learned" during the period of crisis form what will follow as normality for the years to come (Karalis, 2020). Thus, what can contribute to the disclosure of things to come include modes of operation during the period of crisis, the evolution and resilience of possible efficient solutions as well as their alternatives and the changes in opinions and attitudes towards certain dimensions of the future choices.

The field of Higher Education Pedagogy is one in which significant effects due to the pandemic are reasonably expected. On the one hand because as a place of education, higher education is more receptive to online teaching and on the other hand because the experience of teaching during the pandemic can even affect the teaching practices of face-to-face teaching the periods after. For Greece, a small number of studies have been published on the experience of the pandemic during its first phase, but with several important findings. Kamarianos, Adamopoulou, Lambropoulos, and Stamelos (2020) found that students were open to learning the new required skills to cope with online learning and have new experiences, and at the same time, they did not seem to face great difficulties with the new mode of teaching and learning. Giavrimis and Nikolaou (2020) showed that social capital contributes to positive social relations and students' interactions. In another study, shifts in students' ways of thinking and acting were detected (Charissi, 2020; Charissi, Tympa, and Karavida, 2020), while another study focused on best practices to enhance students' online experiences during the pandemic (Pavlis Korres, 2021).

2. Method

A few days after the disruption of educational operation in higher education institutions in Greece, we conducted a twinned study in two departments of the Democritus University of Thrace (DUTH) and the University of Patras (UP), two of the major Universities in Greece. The study was undertaken by the Laboratory of Pedagogical Research and Lifelong Education (Department of Educational Science and Early Childhood Education, UP) and the Laboratory of Teaching and Professional Development of Bioscientists (Department of Molecular Biology, DUTH). The first results of these studies were presented separately (Kedraka & Kaltsidis, 2020; Karalis & Raikou, 2020), while a comparative investigation followed (Raikou, Kaltsidis, Kedraka & Karalis, 2020) to unveil the situation in Greek higher education during the very first phase of the pandemic.

With the gradual return to forms of traditional ways of teaching and learning, the same research team also explored the views of students, after the experience of online emergency teaching and as students now returned to the traditional mode of learning. The results of this research are presented in this paper to shed light on students' opinions regarding the degree to which they accept online teaching, its relationship with the traditional mode of teaching and the possible effects of these views on the choice of future teaching solutions in higher education.

The current study was conducted in May 2021 addressing students both from the Democritus University of Thrace and the University of Patras. It followed the research design we used one year earlier with the same aim, thus to spot and compare students' views related to their impressions of their e-learning experience.

3. Sample

A total of 193 students of two Greek regional Universities participated in the survey: 107 students from the Department of Educational Science and Early Childhood Education (DESECE) at the University of Patras (UP) and 86 students from the Department of Molecular Biology and Genetics (MBG) at the Democritus University of Thrace (DUTH). Of these, 33 were men and 160 were women. In the UP the vast majority were women (97.2%), since in this Department the student population is mainly female, while in the DUTH, women constituted 65.1% of the participants. As far as the year of study is concerned, the participants came from the 2nd year of study onwards, with most of them attending the 3rd year (91/193). In particular, the vast majority of participants per institution were for the UP from the 3rd and 4th year (92.5%), while for the DUTH it was from the 2nd and 3rd year (96.5%).

4. Results

Regarding online education (Table 1) the majority of students at both participating Universities (UP 84.1% - DUTH 98%) would not want (not at all/little) to maintain online education after the pandemic in Laboratory courses, while a little more than half have the same negative attitude for the continuation of online education regarding Elective (usually containing workshops) courses (UP 62.6% - DUTH 59.3%) and Lectures (UP 51.4% - DUTH 52.3%).

Table 1. Students' preference on maintaining online education after pandemic

Type of course	Uni-versity	Not at all		A little		Quite		Much		Very much		Mean	S.D.
		N	%	N	%	N	%	N	%	N	%		
Lectures	UP	43	40.2	12	11.2	13	12.1	15	14.0	24	22.4	2.67	1.636
	DUTH	27	31.4	18	20.9	24	27.9	7	8.1	10	11.6	2.48	1.326
Elective courses	UP	47	43.9	20	18.7	12	11.2	15	14.0	13	12.1	2.32	1.458
	DUTH	35	40.7	16	18.6	15	17.4	12	14.0	8	9.3	2.33	1.376
Laboratory courses	UP	85	79.4	5	4.7	6	5.6	5	4.7	6	5.6	1.52	1.152
	DUTH	80	93.0	5	5.8	0	0	0	0	1	1.2	1.1	0.486

As presented in the chart below (Figure 1), it, therefore, appears that the negative attitude towards the continuation of online education after the pandemic prevails in all kinds of courses offered at the University (Lectures-Elective-Laboratory), with the most pronounced attitude of students towards laboratory courses. In contrast, almost one in three (36.4%) believes that online education could continue for Lectures (answer: much/too much).
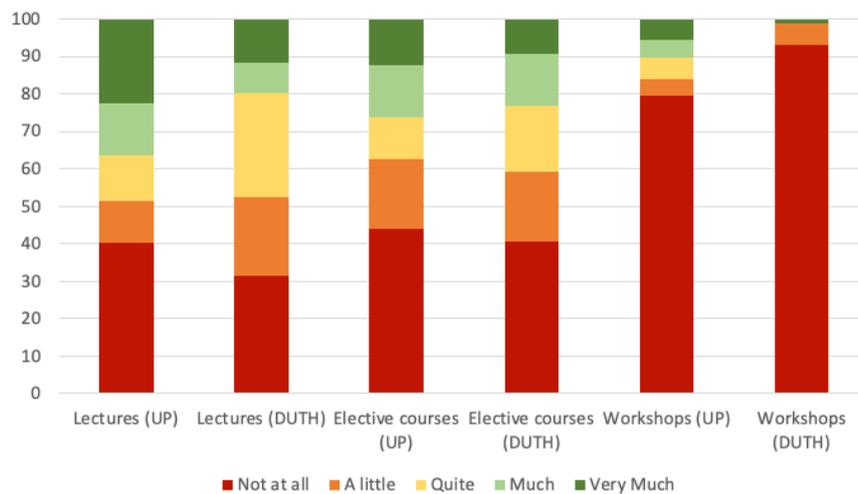

Figure 1. Students' preference on maintaining online education after the pandemic

Moving on to an assessment of the online education environment compared to the traditional one (Table 2), most participants take a moderate stance on the educational capabilities of the former, however, UP students have higher averages (and thus a more positive attitude) to all parameters compared to DUTH students.

More specifically, on a much/very much scale, 71% of the UP and 58.1% of the DUTH believe that new skills related to distance education are being cultivated, while 52.3% of the students of the UP and 44.2% of the DUTH believe that the content of the course is understandable. Moreover, on the same scale (much/very much), 51.4% of the UP and 37.3% of the DUTH report that attending the course online is easy.

Beyond that, lower averages (≤ 3) on the 5-point scale (where 1: not at all and 5: very much) appear in the views of the participants whether the teaching method of online education covers the needs of the course (3.02 UP – 2.81 DUTH), about the satisfaction of communication with the teacher (3.14 UP – 2.6 DUTH), insofar as they consider the new way

of teaching to be of interest (2.9 UP – 2.5 DUTH) and in the degree of participation of students in the course (2.85 UP – 2.85 DUTH). The lowest values appear in the participants' views on the interaction between teachers and students (2.7 UP – 2.34 DUTH) as well as between students (2.29 UP – 1.81 DUTH).

Moving now to a comparison of these values with the corresponding findings from the survey that had been conducted a year ago in the same Departments during the first months of implementation of online education in Universities (Raikou, Kaltsidis, Kedraka & Karalis, 2020), it seems that there is a decrease in the positive attitude of students towards the new way of teaching. This decrease is observed in the students at both participating Universities, while it is more pronounced among the students at the University of Patras who in the 2020 study showed very high rates of satisfaction and positive attitude (over 70%) in almost all aspects. In other words, UP students a year ago considered the new way of teaching much more interesting and felt much more satisfied with their participation in the courses as well as with the way teachers communicated with students, while attending the course seemed to be easier for them. On the contrary, one in five DUTH students was experiencing difficulties. The only exception seems to be in DUTH students' opinion about the development of new skills, which has slightly augmented in comparison with the previous study (56% in the 2020 study – 58.1% in the 2021 study). Regarding the negative characteristics that students identify in online education, in relation to the usual educational context, the elements mentioned are related in both studies (2020 & 2021) to issues of poor interaction, cooperation and socialization in the academic context. Nevertheless, in the current study students are more concerned, having a more negative mood in most indicators.

Table 2. Assessment of the online educational environment (compared to the previous one)

Assessment	University	Not at all		A little		Quite		Much		Very much		Mean	S.D.
		N	%	N	%	N	%	N	%	N	%		
The content of the course is comprehensible	UP	6	5.6	15	14.0	30	28.0	41	38.3	15	14.0	3.41	1.072
	DUTH	4	4.7	10	11.6	34	39.5	33	38.4	5	5.8	3.29	0.919
New skills related to distance education are being developed	UP	0	0	8	7.5	23	21.5	53	49.5	23	21.5	3.85	0.845
	DUTH	3	3.5	7	8.1	26	30.2	34	39.5	16	18.6	3.62	0.996
The teaching method of distance learning covers the prerequisites of the course	UP	6	5.6	24	22.4	44	41.1	28	26.2	5	4.7	3.02	0.951
	DUTH	5	5.8	28	32.6	32	37.2	20	23.3	1	1.2	2.81	0.901
The new mode of teaching is interesting	UP	12	11.2	27	25.2	34	31.8	28	26.2	6	5.6	2.90	1.090
	DUTH	20	23.3	25	29.1	22	25.6	16	18.6	3	3.5	2.5	1.145
Communication with the teacher is satisfactory	UP	3	2.8	22	20.6	45	42.1	31	29.0	6	5.6	3.14	0.905
	DUTH	14	16.3	28	32.6	24	27.9	18	20.9	2	2.3	2.6	1.066
Participation in class is great	UP	11	10.3	29	27.1	39	36.4	21	19.6	7	6.5	2.85	1.062
	DUTH	4	4.7	24	27.9	40	46.5	17	19.8	1	1.2	2.85	0.833
Attending is easy	UP	6	5.6	21	19.6	25	23.4	38	35.5	17	15.9	3.36	1.136
	DUTH	11	12.8	18	20.9	25	29.1	20	23.3	12	14.0	3.05	1.236
The interaction between teacher and students is great	UP	14	13.1	29	27.1	44	41.1	15	14.0	5	4.7	2.70	1.021
	DUTH	12	14.0	41	47.7	25	29.1	8	9.3	0	0	2.34	0.835
The interaction among students is great	UP	32	29.9	33	30.8	27	25.2	9	8.4	6	5.6	2.29	1.149
	DUTH	36	41.9	32	37.2	16	18.6	2	2.3	0	0	1.81	0.819

Referring to the online course (Table 3), the majority of the participants consider that it affects much / very much whether the professor during the course has the camera open (68.2% UP – 70.9% DUTH), any deficiencies of the teacher in knowledge of handling the platform (65.4% UP – 74.5% DUTH), the non-cooperation with their fellow students (62.6% UP – 65.1% DUTH) and the non-visual communication with the rest of their fellow students (54.2% UP – 61.6% DUTH). Regarding the differences between the two Universities, it appears from the participants' responses that the students of the DUTH have a stronger view of the effect of the above parameters on the effectiveness of the online course in relation to the students at the University of Patras.

Compared to the corresponding survey a year ago (Raikou, Kaltsidis, Kedraka & Karalis, 2020), it seems that we have an increase in the importance that students give to factors affecting e-learning. Specifically, in all parameters it is observed that the percentages that responded much / very much move mainly between 10%-20% more in both

Universities, with the exception of whether they consider that it affects a much / very much whether the professor during the course has the camera open, where the increase in the percentage in DUTH reaches 45.5% (25.4% in the 2020 study - 70.9% in the 2021 study). Similarly, in UP the largest increase is observed in the emphasis given by the participating students to visual communication with the rest of their fellow students, where the difference reaches about 20% (34.9% in the 2020 study – 54.2% in the 2021 study).

Table 3. Factors affecting students' e-learning

Factors	Uni-versity	Not at all		A little		Quite		Much		Very much		Mean	S.D.
		N	%	N	%	N	%	N	%	N	%		
The teacher's camera should be on	UP	7	6.5	9	8.4	18	16.8	40	37.4	33	30.8	3.78	1.168
	DUTH	3	3.5	8	9.3	14	16.3	34	39.5	27	31.4	3.86	1.076
Teacher's deficiencies in knowledge of handling the platform	UP	3	2.8	10	9.3	24	22.4	50	46.7	20	18.7	3.69	0.975
	DUTH	1	1.2	4	4.7	17	19.8	36	41.9	28	32.6	4	0.907
Non-visual communication with my fellow students	UP	9	8.4	14	13.1	26	24.3	37	34.6	21	19.6	3.44	1.191
	DUTH	8	9.3	8	9.3	17	19.8	26	30.2	27	31.4	3.65	1.272
Non-cooperation with my fellow students	UP	7	6.5	9	8.4	24	22.4	40	37.4	27	25.2	3.66	1.141
	DUTH	6	7.0	7	8.1	17	19.8	30	34.9	26	30.2	3.73	1.182

Regarding the question of which way is easier to ask questions (Table 4), for UP students the first preference is through a microphone on Zoom (Mean 3.85), followed by the face-to-face way in the classroom (3.79), which is the first preference of the students of the DUTH (3.63). The next way it was declared was in groups (breakout rooms) on Zoom (3.52 UP-3.43 DUTH), while the smaller Mean had the chat during the course (3.43 UP-3.27 DUTH). In contrast, in the corresponding survey conducted a year ago (Raikou, Kaltsidis, Kedraka & Karalis, 2020), in both Universities, students preferred mostly (much/very much) chat, meaning written communication to pose questions, rather than speaking on their microphone during the electronic class. In other words, text messages were the main mode of communication during the course for both Universities in the first months of online learning.

Table 4. Students' preferred ways of communicating with the instructor

Ways of communication	Uni-versity	Not at all		A little		Quite		Much		Very much		Mean	S.D.
		N	%	N	%	N	%	N	%	N	%		
On chat	UP	9	8.4	12	11.2	34	31.8	28	26.2	24	22.4	3.43	1.198
	DUTH	10	11.6	11	12.8	23	26.7	30	34.9	12	14.0	3.27	1.202
Speaking online	UP	0	0	6	5.6	30	28.0	45	42.1	26	24.3	3.85	0.856
	DUTH	8	9.3	14	16.3	22	25.6	30	34.9	12	14.0	3.28	1.175
Online groups (breakout rooms)	UP	4	3.7	13	12.1	33	30.8	37	34.6	20	18.7	3.52	1.049
	DUTH	7	8.1	11	12.8	21	24.4	32	37.2	15	17.4	3.43	1.164
In the classroom	UP	6	5.6	12	11.2	24	22.4	22	20.6	43	40.2	3.79	1.244
	DUTH	8	9.3	7	8.1	19	22.1	27	31.4	25	29.1	3.63	1.247

The element that students mention they miss about the University's usual operating mode is mainly the social aspect (Table 5). Specifically, the majority of students in both Universities missed social interaction on campus (95.3% UP – 87.2% DUTH), followed by face-to-face communication during lessons (82.2% UP – 86% DUTH), as well as their fellow students (82.3% UP – 82.6% DUTH). Next in order of statement are the classrooms (71% UP – 73.2% DUTH), teachers (64.5% UP – 73.3% DUTH) and the library (45.8% UP – 64% DUTH).

Therefore, a remarkable lack of social interaction in both Universities is mentioned, which is in line with the

corresponding survey a year ago (Raikou, Kaltsidis, Kedraka & Karalis, 2020). However, it is worth pointing out that all values in current research are higher than in the previous one (an increase between 6.6%-24.4% for both Universities), especially as far as educational spaces are concerned, where the increase in the percentage is over 15% in both Universities (classrooms: 46.6% UP-57.3% DUTH in the 2020 study & 71% UP – 73.2% DUTH in the 2021 study, and the University library: 27.2% UP-45.3% DUTH in the 2020 study & 45.8% UP – 64% DUTH in the 2021 study).

Another difference compared to the previous survey is that the teachers, while in the previous year's ranking of the elements that were missing from students due to online education were in the 4th place, in the current survey they found themselves in the 5th place, with the classrooms being reported as a bigger shortage now. It seems that the classrooms are missing in the students much more than a year ago, while respectively the teachers no longer miss them to the same extent, since obviously through online education they keep contact and cover the need for communication with them.

Table 5. Elements of regular education that are missing from online education

Elements	Uni-versity	Not at all		A little		Quite		Much		Very much		Mean	S.D.
		N	%	N	%	N	%	N	%	N	%		
Educators	UP	3	2.8	13	12.1	22	20.6	40	37.4	29	27.1	3.74	1.076
	DUTH	5	5.8	5	5.8	13	15.1	41	47.7	22	25.6	3.81	1.068
Fellow students	UP	1	0.9	10	9.3	8	7.5	22	20.6	66	61.7	4.33	1.026
	DUTH	4	4.7	4	4.7	7	8.1	19	22.1	52	60.5	4.29	1.105
Library	UP	8	7.5	25	23.4	25	23.4	23	21.5	26	24.3	3.32	1.278
	DUTH	2	2.3	6	7.0	23	26.7	25	29.1	30	34.9	3.87	1.049
Classrooms	UP	4	3.7	5	4.7	22	20.6	35	32.7	41	38.3	3.97	1.059
	DUTH	2	2.3	6	7.0	15	17.4	32	37.2	31	36.0	3.98	1.017
In person communication during the lesson	UP	0	0	5	4.7	14	13.1	30	28.0	58	54.2	4.32	0.875
	DUTH	2	2.3	2	2.3	8	9.3	21	24.4	53	61.6	4.41	0.925
Social interaction	UP	0	0	3	2.8	2	1.9	18	16.8	84	78.5	4.71	0.644
	DUTH	3	3.5	3	3.5	5	5.8	13	15.1	62	72.1	4.49	1.003

Regarding the feelings of the students when the University closed (Table 6), the participants stated that they were mainly curious about what will happen (Mean: 4.01 UP-4.03 DUTH), anxiety about when and how the studies will be continued (4.2 2 UP-3.9 DUTH), fear of the possibility of non-continuation of studies (3.83 UP-3.36 DUTH) and sadness for the interruption of studies (3.82 UP-3.29 DUTH). Especially per University institution, the most intense feeling for the participating students at the University of Patras was the anxiety for their studies (84.1% much / very much), while for the participants from the DUTH it was curiosity about what would follow (74.4% much/much).

Table 6. Students' emotions when the Universities closed due to the COVID-19 pandemic

Emotions	Uni-versity	Not at all		A little		Quite		Much		Very much		Mean	S.D.
		N	%	N	%	N	%	N	%	N	%		
Joy at the classes not being held	UP	29	27.1	35	32.7	23	21.5	13	12.1	7	6.5	2.38	1.195
	DUTH	13	15.1	18	20.9	35	40.7	14	16.3	6	7.0	2.79	1.107
Curiosity about what will happen	UP	2	1.9	6	5.6	16	15.0	48	44.9	35	32.7	4.01	0.937
	DUTH	1	1.2	4	4.7	17	19.8	33	38.4	31	36.0	4.03	0.926
Sorrow over the interruption of studies	UP	1	0.9	12	11.2	26	24.3	34	31.8	34	31.8	3.82	1.035
	DUTH	6	7.0	12	14.0	33	38.4	21	24.4	14	16.3	3.29	1.115
Fear for the possibility of non-continuation of studies	UP	10	9.3	8	7.5	14	13.1	33	30.8	42	39.3	3.83	1.285
	DUTH	11	12.8	15	17.4	15	17.4	22	25.6	23	26.7	3.36	1.38
Anxiety about when and how studies will be completed	UP	2	1.9	8	7.5	7	6.5	37	34.6	53	49.5	4.22	0.993
	DUTH	5	5.8	5	5.8	14	16.3	32	37.2	30	34.9	3.9	1.128
Indifference because it did not bother me	UP	89	83.2	6	5.6	10	9.3	1	0.9	1	0.9	1.31	0.757
	DUTH	71	82.6	9	10.5	3	3.5	2	2.3	1	1.2	1.29	0.749

Accordingly, the feelings expressed a year later (Table 7) were for both the participating students from the UP and the DUTH relief that the studies were not interrupted (Mean: 4.3 UP – 3.91 DUTH). However, the feeling of curiosity about how the studies will continue remains high (3.78 UP – 3.95 DUTH), while at the same time they feel happy that the courses continue (3.71 UP – 3.44 DUTH).

Comparing these figures with the feelings expressed by students during the first months of implementation of the new way of education a year ago (2020), it seems that as then so now positive emotions dominate, however, the intensity of these feelings appears in almost all cases reduced (lower percentage of responses much / very much). When online classes started, the majority in both Universities stated a clear change of emotions, mainly towards a positive direction. They expressed satisfaction and joy that the semester would not be lost. In particular, as for the intensity of dominant emotions during online teaching, we can observe that relief (much/very much), because the semester will not be lost, was expressed at the University of Patras by 95.2% of the participants at the beginning of the online education and 87.8% one year after, while at the University of Thrace by 86.6% and 76.8% respectively. Curiosity about how to continue their studies was noted by 70.9% (2020 study) - 67.2% (2021 study) and 69.4 (2020 study) - 76.7% (2021 study) respectively. It seems that the only feeling that was strengthened in the current study was a curiosity for the future of their studies for the students of the DUTH.

Table 7. Students' emotions during online education

Emotions	Uni-versity	Not at all		A little		Quite		Much		Very much		Mean	S.D.
		N	%	N	%	N	%	N	%	N	%		
Joy at the continuity of the lessons	UP	4	3.7	7	6.5	25	23.4	51	47.7	20	18.7	3.71	0.971
	DUTH	7	8.1	3	3.5	29	33.7	39	45.3	8	9.3	3.44	1.001
Pleasure at not having to commute to attend classes	UP	19	17.8	18	16.8	24	22.4	19	17.8	27	25.2	3.16	1.435
	DUTH	12	14.0	26	30.2	16	18.6	14	16.3	18	20.9	3	1.372
Relief at not losing the semester	UP	2	1.9	1	0.9	10	9.3	44	41.1	50	46.7	4.30	0.827
	DUTH	5	5.8	6	7.0	9	10.5	38	44.2	28	32.6	3.91	1.113
Enthusiasm for the new experience	UP	13	12.1	33	30.8	33	30.8	16	15.0	12	11.2	2.82	1.172
	DUTH	19	22.1	25	29.1	26	30.2	10	11.6	6	7.0	2.52	1.165
Disappointment. the new educational environment does not work for me	UP	19	17.8	23	21.5	26	24.3	25	23.4	14	13.1	2.93	1.301
	DUTH	9	10.5	12	14.0	21	24.4	25	29.1	19	22.1	3.38	1.266
Curiosity about how studies will continue	UP	9	8.4	4	3.7	22	20.6	39	36.4	33	30.8	3.78	1.176
	DUTH	3	3.5	5	5.8	12	14.0	39	45.3	27	31.4	3.95	1.005

Nevertheless, as mentioned above, the intensity of the positive emotions seemed much greater one year ago and particularly at the students of UP in comparison to the students of DUTH. However, in the current study, the intensity is much lower for the students of UP (a difference between 25%-44.7%). More specifically, the participating students expressed joy at the continuity of the lessons [UP: 91.3% (2020 study)/66.4% (2021 study) - DUTH: 60% (2020 study)/54.6% (2021 study)], pleasure that no commuting is required for the course [70.9% (2020 study)/ 43% (2021 study) - 44% (2020 study)/37.2% (2021 study)], as well as enthusiasm for the new experience [70.9% (2020 study)/ 26.2% (2021 study) - 21.3% (2020 study)/18.6% (2021 study)]. This is in accordance with the intensity of disappointment with the new educational environment, where the differentiation between the two Universities is clear: 48% 24.5% of the UT participants and 80.6% 38.3% of the UP participants showed no or little disappointment with the new educational environment. In other words, students from the UP were more enthusiastic than students from the DUTH about the way the courses have continued, nevertheless, this enthusiasm and excitement are significantly limited one year after. On the other hand, students from the DUTH, from the beginning of online learning till one year after, seem more moderate.

5. Discussion

After two years of the COVID-19 pandemic in our lives, we realized there are two kinds of pandemics– the health pandemic and an associated economic and social one based on the fears and anxieties raised of the first, which affect the educational community as well (Peters & Rizvi, 2020). After the first shock of lockdowns due to the pandemic, Universities had to switch to online instruction. The pandemic has indeed impacted teaching in higher education (UNESCO, 2020) and although most Universities have successfully switched their teaching activities from face-to-face to the online mode, several problems arose, such as low quality of teaching, work overload, access difficulties, students'

anxiety and dissatisfaction and more (Gusso et al., 2020). Higher education institutions around the world tried to adapt to the pandemic as soon as they could, depending on their readiness to provide online lessons and different strategies regarding teaching and learning. At the beginning of this period in the Spring semester of 2020, we referred to an *emergency remote teaching* (Hodges et al., 2020). The uncomfortable situation continued in 2021, with an impact on students in all levels of education (Bond, 2020; Marinoni et al., 2020).

In our study, we attempt to understand students' views, perceptions, and concerns from distance learning through opportunities and challenges they experienced during the second phase of the closure of higher education institutes due to the covid-19 pandemic in the academic year 2020-21. Data were collected in May 2021 through an online survey questionnaire and the participants were 193 students of two peripheral Universities in Greece: the University of Patras and the Democritus University of Thrace. The aim of the study was to monitor students' perceived opportunities and advantages of distance learning to those of the previous year, when they were introduced to distance learning methods for the first time, depicted in a previous study we conducted one year ago (Raikou, Kaltsidis, Kedraka & Karalis, 2020).

Considering that we used the same questionnaire, we tried to compare students' attitudes, concerns and opinions with the findings from the survey that we conducted a year ago in the same Departments during the first months of implementation of online education in Universities (Raikou, Kaltsidis, Kedraka & Karalis, 2020). It seems that there is a decrease in the positive attitudes of students towards the new way of teaching. This decrease is observed in the students at both participating Universities, while it is more pronounced among the students at the University of Patras who in the 2020 study showed very high rates of satisfaction and positive attitude (over 70%) in almost all aspects. In other words, UP students a year ago considered the new way of teaching much more interesting and felt much more satisfied with their participation in the courses as well as with the way teachers communicated with students, while attending the course seemed to be easier for them. On the contrary, DUTH students were experiencing difficulties.

The findings in our research show that students from both Greek Universities, despite their initial reservations in 2020, seems that they were enjoying distance education and they had a rather positive attitude but after three semesters of online education, though, they are certainly less enthusiastic. Comparing the online education environment to the traditional face-to-face one, most participants take a moderate stance on the educational skills acquired through e-learning, however, UP students have a more positive attitude compared to DUTH students, since they believe that new skills related to distance education are being cultivated. Moreover, 51.4% of the UP and 37.3% of the DUTH students report that attending the online courses is easy and comfortable.

Indeed, most of them at both participating Universities would not want at all to maintain online education after the pandemic in laboratory courses, while a little more than half have the same negative attitude towards online education in lectures. Students from the UP were more enthusiastic than students from the DUTH about the way the courses have continued, nevertheless, this enthusiasm and excitement are significantly definitely limited one year after. Indeed, the National Centre for Student Equity in Higher Education in Australia underlines that students are at risk for long-term educational disengagement and increased psychosocial challenges due to continuous distance learning procedures they had to follow during the pandemic (Burke, 2021).

Regarding the negative aspects in online education, in relation to the usual (that is face-to-face) educational context, students identify elements like interaction, cooperation and socialization in the academic context as poor, although they consider that a better knowledge of handling platforms, chats, breakout rooms and cameras on lead to better communication either with the instructor or their fellow students. Regarding the differences between the two Universities, it appears that the students of the DUTH have a stronger view about the effect of the above on the effectiveness of the online course in relation to the students at the University of Patras. Therefore, a remarkable lack of social interaction in both Universities is mentioned, which is in line with the corresponding survey we conducted a year ago (Raikou, Kaltsidis, Kedraka & Karalis, 2020).

In higher education classrooms students engage in usual academic duties in their lectures, labs, projects, essays, and all kinds of educational tasks, thus they acquire skills as critical readers and writers. At the same time, they communicate, they get to mingle with their peers and teachers, they face issues of their own or each other's, they broaden their social world to include all shades of color, religion, accent, wealth, and age, although vast inequities still exist within the educational system. Therefore, students bring in and gain at the same time rich personal, educational and collective experiences into classrooms, while they interact (with success or not) with others, they get the so-called habits of academic discourse (Feder-Lewis, 2021). It seems that this is what the students in our study miss in distance learning. They may transfer their anxiety for the de-socialized lives they have to live, during lockdowns or restriction periods societies and Universities have to go through due to the pandemic, to virtual methodologies of learning.

Likewise, Arndt et al. (2020) in their content analysis survey, based on data collected by 52 students and 17 instructors at higher education institutions in Germany, concluded that 13 central topics of interest arose in the institutions of higher

education, adaptations made on workload, communication and interaction, prior experience in digital tools and their impact on courses, and the evaluation of the switch from in-person to online learning. Ismaili (2020) in her research in Hungary evaluated the initial experience of students in using new platforms for distance learning, like Teams and Zoom, and also explored the effects distance learning had on students' satisfaction and attitudes toward their education. She argues that there is a potential future for e-learning platforms in higher education institutions, since the results of her research showed that distance learning is still in an initial, developmental stage. Students tend to prefer traditional classrooms, but they have positive attitudes and willingness to engage in distance learning classes in the post-COVID19 pandemic era. A similar survey was conducted by Basford (2021) at the end of March 2021. She collected data from a quantitative in her education classes, aiming to gauge student satisfaction with their academic and campus experiences throughout the 2020-21 academic year. Basford argues that there are some teaching practices, that academia successfully used during the pandemic period, that can be held onto moving forward to the meta-covid era, e.g., break-out rooms, conferenced individually with students via Zoom and implemented partner discussion and group work that got students working together. Gusso, Schuster, and de Souza Gomes (2021) presenting a case study regarding emergency remote teaching in a course offered during the pandemic, report students' great satisfaction and gaining learning skills.

As for the feelings of the students when the University closed, the participants stated that they were mainly curious about what will happen, anxiety about when and how the studies will be continued, fear of the possibility of non-continuation of studies and sadness for the interruption of studies. Especially, the most intense feeling for the participating students at the University of Patras was the anxiety concerning their studies, while for the participants from the DUTH it was curiosity about what would follow. Accordingly, the main feeling expressed a year later for both the UP and the DUTH participating students, was relief that the studies were not interrupted. However, they still feel curious about how the studies will continue, while at the same time they feel happy that the courses continue. It seems that the educational context has changed from "normal" to "new normal". Teachers' identity is affected by their teaching and their practices (Friesen & Besley, 2013). Our findings agree with Crawford et al. (2020), who analyzed in their research 20 countries' higher education intra-period digital pedagogy responses to COVID-19. They noted three typologies of response: the move to online teaching, ranging from no response through to social isolation strategies on campus, and rapid curriculum redevelopment for fully online offerings. In another study, Bozkurt et al. (2020) analyzed data from 31 countries and identified the main issues of concern caused by the interruption of education, such as psychological pressure and anxiety, concerns on courses' delivery and evaluation methods.

Changes due to the digital delivery of courses have also affected the students and how they behave in online classes, forming a cycle since these behaviors again affect instructors and their teaching practices. Teachers have become more creative and flexible, bringing out new ideas to teach and how to design the educational context -and time- with maximum flexibility and accessibility. These results led us to reflect on several perspectives, ideas and provocations determining the COVID-19 crisis as an opportunity to describe experiences of working under the current conditions, facing the 'new normal", reconsidering some of the contradictions we have gone through, which have long existed in higher education, and re-forming and re-imagining new pedagogic possibilities, having no other option but to experiment and innovate under the conditions of anxiety, uncertainty and complexity. As noted by Strachan and Khan (2021), mentoring and support provided by faculty is necessary for STEM students as important aspects of their career development, to encourage them to stick to their goals.

Atieku-Boateng (2021) argued the extent to which online education will replace the traditional mode of learning. Despite technological tools and provisions, there is a core issue academia faced during the pandemic: how online education can replace the aspect of human interaction in respect of emotions, an aspect he feels that needs to be researched further. Mukherjee (2021) proposes a blended learning model as a learning strategy to deliver the courses. He argues that within a formal face-to-face course, academics could introduce online content in a regular teaching setting and highlighted that the quantum of blending accepted by the students has a positive correlation with their learning gain. Teachers who were usually just technology users are now changing to be the designers of learning systems. Students were not always provided sufficient support since the online courses were inadequately designed for all learners (Hargis, 2020) -but at the same time they were quite active in the social media through digital communities- now try to consolidate their digital communities towards being more conducive to learning. Moreover, both instructors and students who were mostly casual users of digital technology started to find more meaningful activities of digital education. Chu et al. (2020) argued for more support and training for educators "to adequately address students' diverse needs" (p. 222). Their study revealed some core issues concerning the future of virtual learning options for Universities, the need for appropriate faculty support and training to cope with the inevitable changes for adopting modern pedagogical practices within an e-learning environment. Additionally, all students must have access to appropriate technological equipment to ensure equity through virtual learning platforms. Finally, they conclude, there is a need for a culture to ensure commitment to support students to become active learners.

6. Conclusions

This study conducted in Greece tried to track the perceptions of students of the switch to online teaching and learning after their second academic year in distance education. Our study reveals that after one and a half years of delivering courses via online education, Greek students seem rather tired. They want to return to their learning normality, especially in laboratory courses, while they seem to have missed the face-to-face continuation, which they cherished, as they state, before the pandemic. They acquired new skills on tools and platforms used for teaching. We can conclude that the pandemic caused by COVID-19 has meaningfully affected students who were surveyed to determine how they assessed the transition from face-to-face education to online. The results clearly show that although they consider that distance education is modern, interesting, adequate and convenient, it cannot replace the social interaction they strive for in classrooms and labs with their peers and teachers. They admit that in the beginning, they were anxious but after experiencing digital education and its ability to offer learning opportunities, they considered attending the courses online easy and comfortable. Yet, not preferable!

The pandemic has been a kind of catalyst towards the adoption of educational technology in higher education and faculty members had to reconsider their role in order to cope with the new teaching environment (Etedali, 2021). For University Pedagogy the issue of digital pedagogies must be faced with respect to the social integration they encourage, as it is one of the main functions of higher education (Moscardini, Strachan, & Vlasova, 2020). Still, a core question has not yet been answered: what kind of sociality can be achieved when students and their faculty only meet in the digital space? Therefore, we should take into consideration what challenges Universities face if they still care about their pedagogic and cultural role, without ignoring possible inequalities of access and outcomes in these new pedagogic environments.

We argue that we have all gained critical awareness due to the COVID-19 pandemic, which could be seen as a good opportunity to critically rethink pedagogical possibilities and innovations based on digital, online tools and skills the higher education community has gained. Moreover, it could trigger the reflection on the basic purposes of higher education, combined with a renewed vision of education that Universities and Academia can offer to students and societies, as well. During the pandemic, educational technologies have become an essential tool to provide distance education. Ghaleb Awad El Refae, Abdoulaye Kaba, Al Ain and Shorouq Eletter (2020) in their study suggested that traditional, non-distance learning in higher education institutions should keep offering courses through distance learning to prevent any shortcomings in the future. The discussion now moves on to how these experiences earned during the pandemic will shape higher education after the pandemic. Will the future of higher education be re-designed and re-constructed based on experiences gained during the pandemic? Will Universities return to "normality"? Or will they move on towards a new, post-digital future of education, which will turn upside-down the delivery of learning?

References

American Psychological Association. (1972). *Ethical standards of psychologists*. Washington, DC: American Psychological Association.

Arndt, C., Ladwig, T., & Knutzen, S. (2020). *Zwischen Neugier und Verunsicherung: Interne Hochschulbefragungen von Studierenden und Lehrenden im virtuellen Sommersemester 2020 [Between curiosity and uncertainty: Internal University surveys of students and lecturers in the virtual summer semester 2020]*. Hamburg. https://doi.org/10.15480/882.3090.

Atieku-Boateng, H. (2021). An evaluation of the effectiveness of online education and the extent to which online education will be replacing the traditional classroom teaching. *Academia Letters*, Article 2806. https://doi.org/10.20935/AL2806.

Basford, L. (2021). "COVID keepers": The teaching strategies we should hold onto after the pandemic ends. *Academia Letters*, Article 2332. https://doi.org/10.20935/AL2332.

Bond, M., Bedenlier, S., Marín, V. I., & Händel, M. (2021). Correction to: Emergency remote teaching in higher education: mapping the first global online semester. *International Journal of Educational Technology, 18*, 61. https://doi.org/10.1186/s41239-021-00298-3

Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., … & Paskevicius, M. (2020). A global outlook to the interruption of education due to COVID-19 Pandemic: Navigating in a time of uncertainty and crisis. *Asian Journal of Distance Education, 15*(1), 1-126. https://doi.org/10.5281/zenodo.3878572

Burke, J. (2021). Learning, teaching and teacher education in a Pandemic. *Journal of the World Federation of Associations of Teacher Education, 4*(1), 10-18.

Charissi, A. (2020). The educational autobiography as a critical reflection tool towards personal and professional

development of pre-service early years practitioners, *European Journal of Education Studies, 7*(2), 71-89.

Charissi, A., Tympa, E., & Karavida, V. (2020). Impact of the COVID-19 disruption on University students' perceptions and behavior, *European Journal of Education Studies, 7*(11), 222-238. https://doi.org/10.46827/ejes.v7i11.3348

Chu, M., Craig, H., Yeworiew, L., & Xu, Y. (2020). Teachers' preparedness to accommodate student needs. *Canadian Journal of School Psychology, 35*(3), 210-224. https://doi.org/10.1177/0829573520916610

Crawford, J., Butler-Henderson, K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., & Lam, S. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Learning & Teaching, 3*(1), 120. https://doi.org/10.37074/jalt.2020.3.1.7

El Refae, G. A., Kaba, A., & Eletter, S. (2020). Distance learning during COVID-19 pandemic: satisfaction, opportunities and challenges as perceived by faculty members and students. *Interactive Technology and Smart Education*, 1741-5659. https://doi.org/10.1108/ITSE-08-2020-0128

Etedali, M. M. (2021). Digital Identity and Teachers' Roles: A Post-COVID-19 Vision. *Academia Letters*, Article 1791. https://doi.org/10.20935/AL1791

Feder-Lewis, S. (2021). Never Really All Grown Up: Identity and the Adult Learner in the Age of Constant Change. *Academia Letters*, Article 3068. https://doi.org/10.20935/AL3068

Friesen, M. D., & Besley, S. C. (2013). Teacher Identity Development in the First Year of Teacher Education: A Developmental and Social Psychological Perspective. *Teaching and Teacher Education, 36*, 23-32. https://doi.org/10.1016/j.tate.2013.06.005

Giavrimis, P., & Nikolaou, S. M. (2020). The Greek University students' social capital during the COVID-19 pandemic, *European Journal of Education Studies, 7*(8), 1-16.

Gusso, H. L., Schuster, J. H., & de Souza Gomes, Q. (2021). Emergency Remote Teaching: A brief report on a course for students and University professors regarding teaching during the pandemic. *Academia Letters*, Article 2004. https://doi.org/10.20935/AL2004

Gusso, H., Archer, A. B., Luiz, F. B., Sahão, F. T., de Luca, G. G., Henklain, M., ... & Gonçalves, V. M. (2020). *Ensino superior em tempos de pandemia: Diretrizes à gestão universitária*. https://doi.org/10.1590/es.238957

Hargis, J. (2020). What is effective online teaching and learning in higher education? *Academia Letters*, Article 13. https://doi.org/10.20935/AL13 1

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The Difference Between Emergency Remote Teaching and Online Learning. EDUCAUSE *Review, 27*. https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Ismaili, Y. (2020). Evaluation of students' attitude toward distance learning during the pandemic (Covid-19): a case study of ELTE University. *On the Horizon, 29*(1). https://doi.org/10.1108/OTH-09-2020-0032

Kamarianos, I., Adamopoulou, A., Lambropoulos, H., & Stamelos, G. (2020). Towards an understanding of University students' response in times of pandemic crisis (COVID-19), *European Journal of Education Studies, 7*(7), 20-40. https://doi.org/10.46827/ejes.v7i7.3149

Kara, A. (2021). Covid-19 Pandemic and Possible Trends for the Future of Higher Education: A Review, *Journal of Education and Educational Development, 8*(1), 9-26. https://doi.org/10.22555/joeed.v8i1.183

Karalis, T. (2017). Shooting a moving target: The Sisyphus boulder of increasing participation in adult education during the period of economic crisis, *Journal of Adult and Continuing Education, 23*(1), 78-96. https://doi.org/10.1177/1477971417691782

Karalis, T. (2020). Planning and evaluation during educational disruption: lessons learned from COVID-19 pandemic for treatment of emergencies in education, *European Journal of Education Studies, 7*(4), 125-142.

Karalis, T., & Raikou, N. (2020). Teaching in times of COVID-19: Inferences and Implications for Higher Education Pedagogy, *International Journal of Academic Research in Business & Social Sciences, 10*(5), 479-493. https://doi.org/10.6007/IJARBSS/v10-i5/7219

Karavas, K., & Liontou, T. (2022). University Students Going Online During the COVID-19 Pandemic: Experiences from A Blended Delivery Course Model in Greece, In C. N. Giannikas (ed.), *Transferring Language Learning and Teaching from Face-to-Face to Online Settings* (88-107), IGI Global. https://doi.org/10.4018/978-1-7998-8717-1.ch005

Kedraka, K., & Kaltsidis, C. (2020). Effects of the COVID-19 pandemic on University Pedagogy: Students' experiences

and considerations, *European Journal of Education Studies, 7*(8), 17-30. https://doi.org/10.46827/ejes.v7i8.3176

Kedraka, K., & Rotidi, G. (2017). University pedagogy: A new culture is emerging in Greek higher education. *International Journal of Higher Education, 7*(8), 17-29. https://doi.org/10.5430/ijhe.v6n3p147

Marinoni, G., van't Land, H., & Jensen, T. (2020). *The impact of Covid-19 on higher education around the world*. IAU Global Survey Report.

Moscardini, A. O., Strachan, R., & Vlasova T. (2020). The role of Universities in modern society. *Studies in Higher Education*. https://doi.org/10.1080/03075079.2020.1807493

Mukherjee, D. (2021). Blended Learning is the Way forward from the Perspective of Management Education. *Academia Letters*, Article 2829. https://doi.org/10.20935/AL2829

Pavlis Korres, M. (2021). Enhancing Students' Online Experience: Best educational practices unveiled by the mouse in the presence of a cat. In L. Kyei-Blankson, E. Ntuli, & J. Blankson (Eds.), *Revealing Inequities in Online Education During Global Crises* (pp. 420-446). USA: IGI-GLOBAL. https://doi.org/10.4018/978-1-7998-6533-9.ch021

Peters, M., & Rizvi, F. (Eds) (2020). Introduction. In Michael A. Peters, Fazal Rizvi, Gary McCulloch, Paul Gibbs, Radhika Gorur, Moon Hong, Yoonjung Hwang, Lew Zipin, Marie Brennan, Susan Robertson, John Quay, Justin Malbon, Danilo Taglietti, Ronald Barnett, Wang Chengbing, Peter McLaren, Rima Apple, Marianna Papastephanou, Nick Burbules, Liz Jackson, Pankaj Jalote, Mary Kalantzis, Bill Cope, Aslam Fataar, James Conroy, Greg Misiaszek, Gert Biesta, Petar Jandrić, Susanne Choo, Michael Apple, Lynda Stone, Rob Tierney, Marek Tesar, Tina Besley & Lauren Misiaszek (2020): Reimagining the new pedagogical possibilities for Universities post-Covid-19, *Educational Philosophy and Theory*. https://doi.org/10.1080/00131857.2020.1777655

Raikou, N. (2012). Can University be a Transformative Environment? Fostering Critical Reflection through Art in Higher Education. *Journal of Literature and Art Studies, 2*(3), 416-421.

Raikou, N., & Karalis, T. (2016). Adult Education and Higher Education - A focus on Transformative Learning in Universities. *International Education and Research Journal, 2*(4), 19-22.

Raikou, N., Kaltsidis, C., Kedraka, K., & Karalis, T. (2020). Teaching in Times of COVID-19 Pandemic in Two Peripheral Greek Universities: Lessons Learned from Students' Experiences and Opinions, Research *Journal of Education, 6*(8), 135-143. https://doi.org/10.32861/rje.68.135.143

Strachan, S., & Khan, S. (2021). Preparing the next generation of stem teachers: One HBCUS approach to the recruitment, retention, and training of Science and Mathematics teacher candidates during Covid-19. *Journal of the World Federation of Associations of Teacher Education, 4*(1), 72-81.

Toka, K. R., & Gioti, L. (2021). Teaching in Higher Education: Theories, Realities and Future Controversies, *Journal of Education and Training Studies, 9*(6), 1-15. https://doi.org/10.11114/jets.v9i6.5210

UNESCO, (2020a). *Institute for statistics data, COVID-19 impact on education*, Available: https://en.unesco.org/covid19/educationresponse

UNESCO, (2020b). *COVID-19 Educational disruption and response*. Paris: Unesco, 30 July 2020. Available at: http://www.iiep.unesco.org/en/covid-19-educationaldisruption-and-response-13363

Copyrights