

# INVESTIGATING THE IMPACT OF THE COVID-19 PANDEMIC ON THE ON-LINE EDUCATION PROCESS AT THE HIGHER EDUCATION LEVEL

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**ABSTRACT:** *The period of study in the online environment can be a very demanding trial for students and masters, especially for those who are not familiar with computer technology. This is largely due to a complex of factors that come from the changes to which they are subjected, such as: leaving the parental home and settling into another living environment (living in dormitories or other forms of accommodation) but also settling with an unfamiliar and very different educational environment from what they were familiar with. Along with all the changes occurring in the family and social plan, the students had to adapt to the educational system made exclusively online. Higher education institutions in Romania use, as a method of knowledge transmission, traditional learning methods, namely they use face-to-face lecture-type courses in a lecture hall or practical and explanatory activities in a seminar/laboratory room.*

**Keywords:** *online environment; students; adaptation; counseling; support*

## 1. Introduction

The infectious disease of the COVID-19 pandemic has affected all aspects of human life, including business, research, education, health, economics, sports, transportation, worship, social interactions, politics, governance, and entertainment [1]. Research that tried to capture the effects of the pandemic has concluded that the new coronavirus (SARS-CoV-2) and the corresponding disease (COVID-19) have had a major impact on people's mental health and behavior [2].

The coronavirus disease 2019 (COVID-19) pandemic has affected educational institutions and instructors in an unprecedented way. Most educational establishments were forced to take their courses online within a very short period of time, and both instructors and students had to learn to navigate the digital array of courses without much training [3]. There are a multitude of studies that have analyzed the impact of the COVID-19 pandemic on student learning. These studies showed that the emergence of the COVID-19 pandemic generated major changes in almost all aspects of society, which led to the emergence of negative effects in the educational process in higher education [4]. Likewise, these studies showed that the period in which university courses were exclusively online had

an impact on the motivation and involvement of students in the educational process [5]. Along with the previously mentioned aspects, the researchers also identified a series of problems related to the limited access to educational technological tools and accessing online platforms due to the precarious financial situation, especially in the case of developing countries, arguing that the emergence of the COVID pandemic-19 has negatively affected the education of students causing educational institutions to adapt their teaching and learning methods [6].

Starting from March 11, 2020, the Romanian Ministry of Education and Research decided to suspend face-to-face courses in the pre-university education system. As a result of this decision, combined with the evolution of the pandemic at the national level, the University decided that from March 18, 2020, to suspend face-to-face activities for a short period of time and reorient itself towards new ways of communication and learning through which to ensure the continuity of learning, using online platforms. Considering the rapid evolution of the pandemic, it was subsequently decided that the online education process should be extended until the end of the academic year.

The main goal of this paper was to know as

close to reality as possible the impact of the pandemic on the education process from the perspective of the opinions and experiences of students and master's students, from the University, after the transition from face-to-face education to online education.

Under these circumstances, a series of logistical, pedagogical, technical, and content impediments inevitably arose in the field of many school subjects [7]. Digital technology supported the continuation of online teaching activities throughout the suspension of face-to-face classes, even if the teaching staff drew attention to the fact that some of the teaching activities, such as those in the laboratories, could not be carried out in the online system because they can have a negative impact on the acquisition of basic knowledge in the studied fields. [8-10].

## 2. Literature Review

Studies on the effects of the Covid-19 pandemic have identified different issues related to the assessment process and examination modalities compared to the forms of assessment used before the pandemic. The data of the studies showed that the education process with a low level of relationship for students and the absence of consultation with teachers when they encountered difficulties in going through, understanding, or memorizing didactic materials, led to a decrease in performance in semester exams with an impact on the grades they received [11]. Online student assessments have had many challenges and errors, insecurity and inaccuracy among teachers and students [12]. Information and communication technologies (ICT) have provided us with new assessment methods, but their success will depend on theoretical and practical knowledge on the part of teachers. In this sense, because of the coronavirus pandemic, university institutions should become aware and accelerate change in education, since online education is an accelerating element of social transformation that is here to stay, improving the education and training of teachers to address the problems posed by online assessment through different strategies. [13]

Current research has highlighted the fact that the emergence of the Covid 19 pandemic also had remarkable consequences on the economic, social, and psychological situation of students [12]. Students had to change their learning method from the traditional classroom model to the online teaching system. Specialists in the field of education have captured how the traditional education process, carried out face-to-face in classrooms, has turned into an education process carried out at the student's home using the online system based on accessing some specialized platforms in this field [14, 15].

Online learning through dedicated platforms was used to conduct courses and transmit information, which raised some problems among students from the perspective of the fact that accommodation had to be done quickly. This aspect led to a psychological impact on the students. According to the researchers who studied this phenomenon, it should be emphasized that the psychological effects left by the pandemic can be long-lasting [16-19], due to quarantine periods, social isolation, and travel restrictions. Although all these measures have been implemented to prevent and reduce the spread of COVID-19 pandemic, their psychological consequences are many [20-22].

One of the mechanisms for adapting to the stress caused by this pandemic period also refers to coping. Researchers in the field of behavioral psychology define coping as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" [23]. Coping strategies can be classified into adaptive strategies that include active adaptation skills manifested by solving problems but also by maintaining social and emotional support to overcome stressful situations [24].

Another classification of coping strategies refers to maladaptive strategies aimed at avoidance, self-blame and sometimes the emergence of addictions especially among adolescents and young people [25]. This type of maladaptive coping can generate many psychological problems and lead to depressive symptoms [26] or anxiety-related problems for adults [27].

The present work begins with a theoretical part that tries to capture the theoretical aspects from the specialized literature but also data from other previously undertaken research. It also includes a part of research aimed at the opinions and experiences of students and master's students, from the University, after the transition from face-to-face education to online education, and at the end there are discussions, future lines of re-search, the limits and conclusions based on 73 bibliographic sources.

### 3. Methods

The present study aims to identify the educational and social impact produced by the pandemic period by moving from face-to-face education to exclusively online education of students and master's students majoring in Social Work, Occupational Therapy and Design and Management of Social and Health Services from the Department of Social Sciences of the Faculty of Law and Social Sciences of the University " and also to discover existing support methods for them, making it easier for them to adapt to this new type of learning, considering the fact that, despite the setback of the pandemic, the online system is still used for education.

The methodological process included three stages: research design, data collection and interpretation of results. We adopted an exploratory methodology for this study. [28] Specifically, it focuses on the experiences of the students and master's students of the University to understand how they coped with online education.

#### 3.1. Content analysis

The technique of content analysis is used to establish the characteristics of the message, to identify the determinants and to know the effects of communication. The research topic refers to the impact of the COVID 19 pandemic on the educational act. In order to solve the research topic, a number of 79 students were investigated who carried out online teaching activities for a long time. Through the content analysis, we aim to highlight the difficulties that arose during the studied period in order to illustrate the impact of the pandemic on the

education process, but also the opinions of those investigated regarding the replacement of face-to-face education with online education.

This study presented how the students at the University, within the social specializations, felt the impact of the COVID-19 pandemic in the process of education and professional training. Thus, the impact produced by this period of insecurity was identified both from an emotional and behavioral point of view, although most of the problems identified referred to the education process. Thus, the interviewed students specified numerous problems arising during face-to-face education, starting from difficulties in connecting to educational platforms and up to the increase of student workloads at the expense of the increase in the educational act.

One of the main points of this work was to get to know better the problems faced by the students and master's students at the University during the periods of online didactic activity, especially from an emotional point of view. We also wanted to know their perception related to the efficiency of replacing face-to-face education with online education.

The theories that were the basis of the research are primarily related to the effects generated by the emergence of this new way of education for which a large part of those involved (teachers, students, master's students) were not trained or educated and in a period of in a very short time they had to adapt to the new changes both in terms of the methods and tools used in the teaching process and the lack of face-to-face social interaction.

The general objective of the present study is to identify the problems that have arisen among students during online education as a result of the COVID 19 pandemic. In order to get to know the truth of this problem as close as possible, an unstructured interview was conducted based on 11 open questions that tried to capture as accurately as possible the different types of difficulties encountered by students and master's students during this period. The identification of technical problems was sought because the entire educational process was based on the accessibility of online platforms but also social or emotional problems generated by the given situation.

The starting hypothesis was related to the fact that the lack of social interaction and sudden changes in student life can generate negative effects socially, emotionally or from the point of view of professional training

The data collected from the respondents in the form of subjective reports were thoroughly analyzed and an attempt was made to code them for a better overview of the studied phenomenon.

The sample was a random one because the respondents voluntarily participated in this study based on their own will, the only common element was the fact that they study within social specializations (bachelor's level and master's level).

The information received from the respondents was organized, synthesized and visualized in order to be transformed into essential information for their analysis and interpretation. After grouping the data, frequency tables are made to present the distribution of students by years of study and specialization for sample validation. Frequency tables are also created to capture all the difficulties encountered by the respondents and which were coded and grouped according to the predominant characteristics.

Frequency tables are descriptive summaries of the raw data to provide a snapshot of the different types of issues raised by interviewees.

To describe the relationships between some of the variables contained in the interview guide, correlations were made with the aim of establishing the existence of links between the changes generated by online education.

### 3.2. Participants

The link sent in March 2022 including the interview guide was sent to all students (127 students) from the social studies majors at both undergraduate and master's level of the University. The data were obtained in October 2022 with the mention that during the first semester of the 2022-2023 academic year, online activities will also take place because of the economic problems faced by the European Union states.

From the total number of students of the previously mentioned specializations (127 students), a number of 79 students answered the

interview guide, which represents 62%. This is a valid response rate as it is larger than the 15% recommended by Hair et al. [29].

The participation in the study was voluntary and the answers were anonymous, the students being informed from the beginning what was the purpose of the study.

### 3.3. The Research Tool

The interview guide was used as a method centered on the interviewee's collaboration with the aim of obtaining relevant information related to the difficulties encountered during the online education process. This way of collecting information was used because it was desired that those investigated provide complex information in relation to the researched topic.

From the point of view of the type of interview, an unstructured interview was used that only included open questions because it was aimed to capture some attitudes, feelings and experiences related to the researched topic.

To conduct the study, an interview guide was designed and distributed to student's online using Google Quiz platform.

The interview guide contains 11 questions associated in six main parts:

- General information about the profiles and year of study.
- Information related to the technical problems that arose during the online education period.
- Previously used online platforms.
- Difficulties encountered during online activities.
- The changes that occurred during the online period from an emotional and affective point of view but also of the learning tasks.
- The opinion related to the replacement of face-to-face education with online education.

## 4. Results

### 4.1. General information about participants

Out of the total of 79 responses, the most are given by students from the Social Work (AS) specialization, 38 responses and which is a bachelor's level specialization, followed by the Social Services Design and Management

specialization and Health (PMSS) with 25 responses and which is a master's degree in the field of Social Assistance (AS). There were 13 responding students of the Occupational Therapy specialization, and 3 answers were received from the Sociology specialization. The small number of responses received from the Occupational Therapy and Sociology specializations is because the number of students is not very high, rarely exceeding 25 students per study group.

Most of the respondents are from the students of the third year of study, 48, because they spent the most time in online activities. There are also a larger number of second-year students, 18 respondents, especially since within this segment there are also master's degree students. There are also 13 first-year students in the master's profile, as they attended online courses during their undergraduate studies. The selection of students according to the year of study followed the integration in the study of the respondents who participated in the didactic activities and the evaluation process in our university.

Table 1 shows the descriptive characteristics of the respondent sample.

stressful situations generated by the online education period in conjunction with the protective measures established by the competent institutions in the field of public health. Most of the problems were related to the quality of the Internet service, which in some areas, especially in the mountainous areas, had a poor quality, which generated frequent interruptions of the classes, leading to the lack of important information for students. The students also confirmed the fact that the use of a new and unknown platform by them led to the emergence of situations of non-fulfillment of the tasks requested by the teaching staff or non-compliance with the teaching period of these tasks.

In order to have an overview of the difficulties encountered by students in the period targeted by this study, I compared the answers, trying to capture them both at the beginning of the online period and during the activities because changes were observed in the aspect that some problems increased like number (Internet connection), others have disappeared (accommodation with online) giving way to new ones. This information is reproduced in the table 2.

Table 1. Distribution of students based on study program for years of study

Distribution of students			
Years of study		Specialization	
Bachelor's level		Bachelor's level	
First year	10	Social Assistance	38
Second year	6	Occupational Therapy	13
Third year	38	Sociology	3
Master's level		Master's	
First year	13	Social Services Design and Management specialization and Health	25
Second year	12		

**4.2. Information related to the technical problems**

In the first part of the interview guide, we wanted to know the problems faced by the students both at the beginning of the online activities and during these activities in order to have a clearer picture of the difficulties encountered. Starting from the investigation of these aspects, we can have a realistic vision of how the students were able to manage the

Analyzing the answers contained in Table 2, we can see that most respondents declared that the main difficulty encountered both at the beginning of the online education process and during it, is the lack of internet connection or better said its instability probably due to the large number of users. It can also be observed that there are also a number of students who had no problems specifying the use of high-performance electronic means.

Table 2. Difficulties generated by online activities

Difficulties encountered most frequently at the beginning of online activities		Vs.	Difficulties encountered most frequently	
Internet connection	30		Internet connection	50
No problem	18		No problems	14
Getting started in using the platform	26		Problems using the platform	4
Accommodation with online	1		Sound quality	6
Lack of a personal laptop	3		Loss of concentration, interest and motivation.	5
The time spent in front of the computer	1			

In addition to the elements captured from the respondents' answers and which clearly express their problems, there were also

$f_t$  = theoretical frequencies  
The data obtained from the interpretation of the answers are reproduced in Table 3

Table 3. the interpretation of the answers

	Without needing help	With help from others	TOTAL (T)
The first year	2 2,96	11 10,03	13
Second year	1 4,10	17 13,89	18
Third year	15 10,93	33 37,06	48
<b>TOTAL (T)</b>	<b>18</b>	<b>61</b>	<b>79</b>

respondents who declared that during this period they manifested strong emotions generated by these problems, because the novelty of this type of education and the changes experienced could not be foreseen.

One of the problems encountered by the students was that of the way in which they needed help for the effective use of the online platforms used within the didactic activities and its evolution during the three years of study. In order to be able to determine the degree of correlation between the year of study and the need for help to use the platforms, the significance test, also known as the  $\chi^2$  test, was used, the calculation relationship used being the one proposed by K. Pearson:  $\chi^2 = \frac{(f_0 - f)^2}{f_t}$   
Where:  $f_0$  = observed frequencies

The data obtained for the theoretical frequencies were entered in Table 3, under the observed frequencies.

Next, the value of the ratio is calculated  $\chi^2$  for each individual situation, the data being ordered in Table 4

The meaning of its value  $\chi^2$  it also depends on the number of degrees of freedom (n), which, in turn, are dependent on the number of frequencies taken into study, respectively on the number of lines and columns of the table in which the primary data were entered, the calculation relationship being:

$$n = (L-1)(C - 1)$$

$$\text{In this case: } n = (3 - 1)(2 - 1) = 2 \times 1 = 2.$$

Tablwe 4. The value of the ratio

$f_o - f^t$	$(f_o - f^t)^2$	$\chi^2$
2 - 2,96 = -0,97	0,97 <sup>2</sup> = 0,9409	0,9409/2,96 = 0,31
11 - 10,03 = 0,97	0,97 <sup>2</sup> = 0,9409	0,9409/10,03 = 0,09
1 - 4,10 = -3,1	3,1 <sup>2</sup> = 9,61	9,61/4,10 = 2,34
17 - 13,89 = 3,1	3,1 <sup>2</sup> = 9,61	9,61/13,89 = 0,69
15 - 10,93 = 4,07	4,07 <sup>2</sup> = 16,56	16,56/10,93 = 1,51
33 - 37,06 = -4,07	4,07 <sup>2</sup> = 16,56	16,56/37,06 = 0,44
TOTAL		5,38

Referring to the data in the table of the significance of the values of  $\chi^2$ , for  $n = 2$ , the value obtained for the minimum significance threshold P is close to 0,05, which means a

used in our university, namely Microsoft Teams.

Student responses were systematized and transcribed into Figures 1

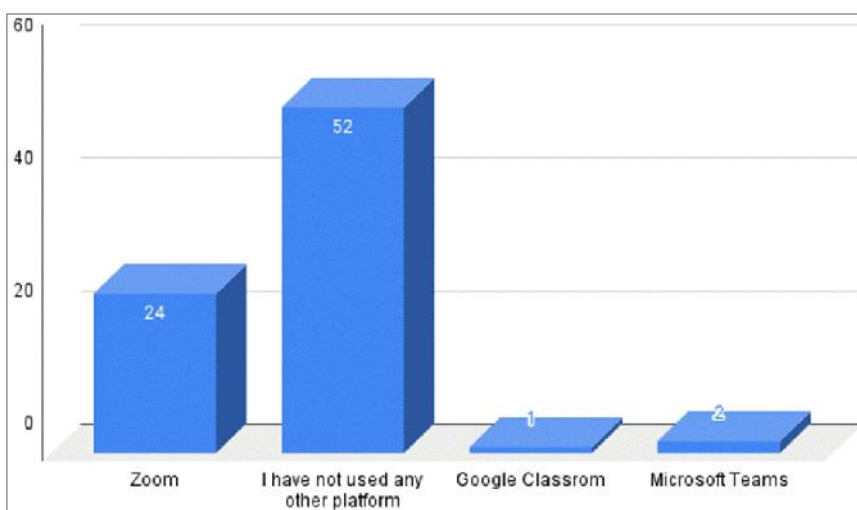


Figure 1. E-learning platforms used

medium degree of correlation, which means that regardless of the respondents' year of study, they needed help at some point during their online activities.

The period of online education among students meant a challenge, because in a very short time they had to familiarize themselves and learn to use new electronic platforms. The interviewed students confirmed in significant numbers that they had not used online platforms before the start of the pandemic, and those who had used platforms stated that they had used the ZOOM platform.

Due to this fact, a large part of the respondents needed support and guidance in understanding the functions of the platform

Another problem encountered among students and which aroused our attention was the one identified following the analysis of the responses received to the question "Which online educational platforms did you use before the start of the pandemic". In order to be able to determine the degree of correlation between the year of study and the use or not of a platform, the significance test, also known as the  $\chi^2$  test, was used the calculation relationship used being the one proposed by K. Pearson:

$$\chi^2 = \sum [(f_o - f^t)^2 / f^t]$$

Where:  $f_o$  = observed frequencies

$f^t$  = theoretical frequencies

The data obtained from the interpretation of the answers are reproduced in Table 5

Table 5. The interpretation of the answers

Year of study	Not use	Google	Microsoft	Zoom	Total
The first year	11 7,898	0 0,151	1 0,303	1 3,645	12
Second year	13 11,848	1 0,227	0 0,455	4 5,468	18
Third year	28 31,594	0 0,607	1 1,215	19 14,582	48
Total	52	1	2	24	79

To determine the theoretical frequencies, the simple rule of three was used, where

$$f_t = T \text{ line} \times T \text{ column} / T \text{ general}$$

The data obtained for the theoretical frequencies were entered in table 5, under the observed frequencies.

Next, the value of the ratio is calculated <sup>2</sup> for each individual situation, the data being ordered in Table 6.

students of the last year declared that they used online platforms before, and this was due to didactic activities based on educational platforms or the increased level of adaptability.

#### 4.3. Analysis of the answers

The problems mentioned by the investigated students in relation to the use of online platforms were, for the most part, related to the

Table 6. The value of the ratio

$f_o - f_t$	$(f_o - f_t)^2$	$\chi^2$
11 - 7,898 = 3,101	9,617	1,217
13 - 11,848 = 1,151	1,326	0,111
28 - 31,594 = -3,594	12,923	0,409
0 - 0,151 = -0,151	0,023	0,151
1 - 0,227 = 0,772	0,596	2,616
0 - 0,607 = -0,607	0,369	0,607
1 - 0,303 = 0,696	0,484	1,595
0 - 0,455 = -0,455	0,207	0,455
1 - 1,215 = -0,215	0,046	0,038
1 - 3,645 = -2,645	6,999	1,919
4 - 5,468 = -1,468	2,156	0,394
19 - 14,582 = 4,417	19,51	1,338
		<b>10,856</b>

The meaning of its value <sup>2</sup> it also depends on the number of degrees of freedom (n), which, in turn, are dependent on the number of frequencies taken into study, respectively on the number of lines and columns of the table in which the primary data were entered, the calculation relationship being:  $n = (L-1)(C-1)$

$$\text{In this case: } n = (3-1)(4-1) = 2 \times 3 = 6$$

Its meaning <sup>2</sup> = 10,856, to a degree of freedom  $n = 6$  register under  $P = 0,10$  which indicates a minor correlation because the

ways of posting information, uploading materials, or sharing screens in most cases. All these encountered difficulties, especially during the seminar activities, created a series of stressful situations among the students.

They mentioned that they needed technical assistance either from peers or even from teachers.

All the stressful situations, to which the students were subjected during the period of accommodation to a new way of education, and



respectively to online education, could generate problems in the socialization process that suffered due to the lack of interaction with colleagues and teachers. It is important to remember that school is a complex socializing agent that, through the values transmitted, places an important emphasis on the personality of the students.

Students were asked about the lack of direct interaction with peers and teachers and how this lack affected them. 58 of the interviewed students answered that they were affected due to the following situations: the lack of interaction with teachers and colleagues, which was a favorite activity for them, expressing themselves in front of a screen and implicitly the lack of feedback from colleagues or the teaching staff, spending a long time in front of the computer led to a decrease in interest and attention. For the students who started in year 1 directly in an online education process it was even more difficult because in the absence of direct interaction with colleagues and teaching staff, they admitted that they did not feel part of the academic system.

We also tried to follow up if the students, because of the lack of direct interaction, experienced behavioral or emotional changes. Thus, 45 of the students who wanted to respond to this interview admitted that they felt changes both behaviorally and emotionally. The respondents also mentioned that "in terms of communication with those around me, I have become a more withdrawn and shyer person. There is the fear of not being able to string together a coherent and fully understood sentence", "Emotional yes; I can't explain why I feel embarrassed when connecting with video and it seems more tiring to sit in front of the computer for 2 hours". There were also answers that again captured the problem related to the lack of direct interaction with colleagues and teachers or that of adapting to a new educational model that generated in most cases a decrease in interest in the education process as it was specified by a respondent "I realized that I am no longer as attentive and focused as I was in face-to-face classes".

Towards the end of the interview, we also wanted to find out some aspects related to how the students' felt changes regarding the number

of tasks for independent activities. After analyzing the answers, we found that 49 of the students stated that during the period of online didactic activities they received more tasks to complete than in the previous period. These tasks included the completion of various projects and portfolios that mostly required time spent in front of the computer. All these aspects led the student to spend a large part of his time in front of electronic devices, affecting him both physically and mentally.

Likewise, an important element in the study was to know if, in the opinion of the students, online learning activity contributed to the increase of the educational act, compared to the face-to-face learning activities. The students' answers (48) showed that, in their opinion, the period of online education did not have any important contribution in the education process. Most of the negative responses received sounded the alarm about the lack of attention and concentration in online classes. Thus, we mention answers such as: "The student is much „looser” behind the screens. That is, he no longer has the sense of responsibility to wake up and go to classes; he turns on the laptop and falls asleep instead. He is not paying attention, especially if he is with the camera and the sound off. In conclusion, I consider that the online learning activity did not contribute to the increase of the educational act, compared to the face-to-face learning activities" or "I do not think that the online learning activity contributes to the increase of the quality of the educational act, because there are many things which cannot be covered online. I don't think we're seeing the effects now, but they're definitely there."

It was found that there were also a number of students (31) who considered this period opportune to increase the quality of the educational act. These things are because a significant part of the students of these specializations are full-time employees, and this period of online education has facilitated their access to classes. But these aspects could have also been against them because the access to the learning platform was done from the workplace and most of the time the student could not participate actively and attentively in the classes and seminar, being focused on the required

tasks of the workplace. So, I received the following answers: "Yes because there are many students who work and cannot be present at the classes, but at the same time there was no face-to-face interaction", "I work, it was easier for me to participate on -line, than physically and I was more present than in the physical system".

If we make a Person correlation with the previous question, we can see that the value of  $r=-0.22$ , which leads us to say that throughout the period of online education, students encountered different difficulties that had an impact on the educational act and even if the number the tasks received by the students increased during that period, this did not lead to an increase in the quality of the educational act, nor to higher grades received by the students at the end of the lessons, but to their determination to spend more time in front of the electronic platforms, generating a multitude of problems from those related to health to those related to the lack of socialization.

To complete our study, we wanted to see if students have preferences related to face-to-face or online education. In this regard, they were asked whether online meetings can take the place of face-to-face meetings, and they were asked to justify the answer provided. Most of the students answered that online meetings cannot replace the face-to-face education process, specifying that "face-to-face interaction is important in understanding and explaining the subject", "you cannot communicate as effectively as when you communicate face-to-face" or "there is a lack in direct communication, the optimal relationship with teachers and colleagues, the feedback necessary for a good understanding".

If we make a correlation between the answers received to the question related to the lack of direct interaction with teachers and the presence of behavioral or emotional changes as a result of the transition to online education, the value of the correlation coefficient is  $r=0.518$ , which shows a high correlation. We can conclude that due to the lack of human interaction and its replacement with an electronic interface had consequences on the students' behavior making them less sociable and inattentive during teaching activities.

In this case, a chi test was also carried out, which resulted in  $P=0.999$ , which shows us that we can speak of a perfect agreement between the two variables and that, as we expected from the beginning of this study, students prefer didactic activities to face to the detriment of online activities although they also present some advantages for students.

The strategies used by students to cope with the changes produced by the pandemic were more often maladaptive than adaptive because they preferred not to confront the stressors, they were subjected to but to accept and adapt to them [30].

The results of this study help us to understand what the students felt emotionally and socially during the online education process and how they managed to cope with these problems. Most of the time they preferred to use different strategies to be able to get over the crisis periods. If students' problems are not treated correctly and realistically intervened, the effects of crisis periods become acute and become a chronic condition [19]. To support students, universities are forced to offer help in any form to facilitate their free expression of what they feel while maintaining their confidentiality.

## 5. Discussion

### 5.1. Research Implications

This study examined the impact produced by the transition of the instructional-educational process from the traditional, face-to-face, to the online one on students as a result of the COVID 19 pandemic. In these conditions, it became a priority for the staff in university education to identify alternative education paths and strategies to support students and facilitate their access to continuing education. The strategies thought up by them wanted to maintain the mental and emotional health of the students as well as the teaching staff, focusing on the transmission of relevant information, optimizing communication, reducing periods of inactivity, making the educational process as attractive as possible and supporting an engaging and efficient atmosphere.

The use of the Internet to develop new technologies has generated a considerable

change in teaching and student learning in higher education. The pandemic caused by COVID-19 has forced universities to switch from face-to-face to online instruction. Furthermore, this transfer process was planned and executed quickly, with urgent redesigning of courses originally conceived for live teaching. [31]

The effects of the pandemic have produced changes in the Romanian educational system, challenging teachers, and students to develop their digital skills, having the opportunity to continue using digital technology even after the resumption of "face-to-face" courses, within the educational act [32]. Higher education (HE) serves to produce well-trained and job-ready graduates. Despite this belief, whether HE produces certificates/qualifications or job-ready graduates—this debate remains unsettled. To date, the current COVID-19 pandemic which erupted in late 2019 continues to create much economic, social and political dislocation throughout the world. Consequently, one outcome for HE during this crisis is the much greater dependence on online/digital technology to deliver courses and programs [33].

As a result of the emergence of the COVID-19 pandemic, several studies were conducted that aimed to measure the psychological impact on students as a result of the transition from traditional classrooms to online learning. These aspects were also pointed out by the researchers who considered that the learning process can be done anywhere due to the lack of space and time constraints [32]. The online instructional-educational process was the best choice in the case of the COVID-19 pandemic, even if this type of education has a negative effect on students [34-37] especially in the case of those who have difficulties connecting to the internet or use of electronic devices. Problems during online classes, in some cases, affected the grades received by students in the exam session, causing them to develop depression and anxiety [38, 39].

Accordingly, digital learning was expected to significantly improve cognitive achievement, skills, competencies, attitudes, and learning outcomes for higher education students during COVID-19 pandemic [40]. Conversely, recent

studies in many countries showed adverse online influences amid COVID-19 pandemic among students in higher education; for example, in the Philippines, students experienced different drawbacks to learning online issues such as low cognitive achievement, insufficient skills, and negative attitudes [41,42]. In China, research results showed a significant lack of students' extrinsic motivation, intrinsic motivation, and deep cognitive engagement [43,44]. In Pakistan, educators experienced various constraints in executing their duties and responsibilities amid COVID-19 pandemic, which affected learning outcomes [45,46]. In India, the usage of online during the COVID-19 pandemic has increased the lack of skills, time management, the lack of infrastructure/resources, poor communication at various levels, negative attitude, and student engagement [47]. In Saudi Arabia, despite the availability of an excellent technological infrastructure, investigators have reported on several of the adverse influences of online among higher education students amid COVID-19 pandemic: low self-efficacy, lack of engagement and motivation, negative attitudes, cognitive load, and absence of goals [48,49,50]; also, they students mainly concerned about passing exams amid this educational situation [50].

## 5.2. Practical applications

Following the outbreak of this pandemic, all the people involved in the educational process (teachers, students) had to have new experiences generated by the rules imposed due to social distancing and different sanitation rules. So that the studies that will be carried out later will have to document the experiences lived by those involved in the education process in order to be able to identify effective strategies that contribute to the improvement of the instructive-educational process, especially in such situations such as the occurrence of a pandemic.

The most appropriate strategies that we can use are those related to coping, and especially the adaptive ones that are based on the identification of social support as shown by other studies undertaken previously [30, 51]. Social support is achieved when a person tells

their problems to another person, a fact that, most of the time, is interpreted as a weakness or vulnerability [52]. Most often, seeking social support was associated with high levels of anxiety, while the accepted coping strategies were associated with low levels of anxiety [23]. Although the pandemic is coming to an end, the effects of the period full of restrictions are being felt among students through the need to adapt to a new way of life or a "new normal". This, in turn, can affect students' academic performance. [23].

Moreover, several studies [53, 54] showed that online learning is often undertaken without fully considering the students' cognitive load, which may lead to decreased competencies, the inability to retain and understand information, the absence of mental goals, and increased negative attitudes. Correspondingly, cognitive load depends on the chosen method of presenting information, student motivation, student involvement, and academic concern [55]. According to Chandler and Sweller [56], cognitive load refers to the method in which cognitive mental resources are focused and employed through learning and problem solving. Skulmowski and Xu [57] added that cognitive load is a consequence of the learning path and the critical factors determining the learning outcomes. Therefore, a student feels cognitive load when they cannot process the information and knowledge received during learning [58]. Hence, understanding occurs when all learning elements related to the educational contents are processed simultaneously by the working memory [56]. Consequently, if the educational contents have multiple factors that cannot be processed simultaneously in the working memory, the learning situation becomes challenging and is not understood, and cognitive load is formed [59]. Thus, higher education educators should enhance mental load distribution during online learning [60].

The online academic teaching process established during the pandemic is below the level of the classic teaching process, but from a certain point of view, the online teaching process, regardless of the forms and tools used, seems to be quite suitable in pandemic situations, especially when the situation requires

the establishment of an epidemiological quarantine situation in the medium and long term. However, the use of the online teaching process during a pandemic requires, whether we like it or not, paying a price and it generates two big problems. In this sense, the price paid does not refer only to the expenses necessary for the development of the online educational process but also in terms of the level of educational efficiency [61].

### **5.3. Limitations**

The current article includes some limitations that could be handled in future investigation, including the relationship between online learning sustainability and to maintain the mental and emotional health of the students as well as the teaching staff [62].

## **6. Future research directions**

Future research is needed to include the entire universe of student`s, master`s, and doctoral students at for the in-depth knowledge of the problems they face with the aim of adapting the teaching methods of teaching staff as well as initiating and implementing of post online support program by Information, Counseling and Career Guidance Centers specialist staff. These programs must investigate the direct and indirect effects of emotional intelligence and general self-efficacy on the adaptability to online teaching [63].

After the COVID-19 pandemic, the education system needs to be reformed to maintain proper and timely teaching to the students. The major challenges in online teaching during COVID-19 were difficulty in practical work, difficulty in monitoring students and insufficient feedback [64]. Distance learning has been an important solution, an effective answer to an unpredictable situation, but universities have always been a place of meeting for students, and the intention is to come back to normality as soon as possible, considering distance learning as a support instrument to manage off-site and foreign students, performing blended learning opportunities, and enabling the idea of green campuses. Of course, thanks to emergency remote education, the Italian university system

has never stopped its activity, and students have continued to take exams and to graduate, but looking at the future, it does not intend to change its peculiarity [65].

This study wants to highlight how many students and master's students at our university felt the lack of interaction with teaching staff during online education. Although the entire teaching staff made sustained efforts to prevent the emergence of problems of any nature, the study shows us that various problems arose primarily from the use of technology and its syncope's that led to the emergence of emotional and affective problems. As a result, teachers will have to develop in search of sustainable teaching practices through involvement of 'Pedagogical Mentors', thus improving the sustainability dynamic of the process [66]. Teachers from Romania were subjected to reflect on the effectiveness of online education during the pandemic, resulting in a correlational study with some interesting conclusions and directions highlighted as characteristic for a sustainable educational program. All in all, it can be concluded that when teachers become experienced in online teaching, the efficiency of online teaching is set to improve and when improvement happens, online teaching becomes sustainable as a proper method of training via online facilitated means of communication [67].

## 7. Conclusions

Managerial leadership—often referred to as a formal arrangement—not only runs regular affairs but also develops strategy and policy directions so that a system/institution is able to combat the further challenges it may encounter for its business routine in the future [68]. Despite the gradual return of students to classrooms, we are witnessing a change in educational systems. A complete switch back to education exclusively in presence can hardly be expected [69]. All this because higher education in Romania continues to use the form of online education, although the COVID-19 pandemic was declared to be over, due to the economic

problems at the level of the European Union, the leaders of the institutions decided to do so. The findings suggest that although students enjoyed several aspects of online learning (such as the recorded lecturers), the overwhelming majority believes that face-to-face is superior [70]

The results of this study could be used by the Information, Counseling and Career Guidance Centers within the universities, by initiating support and support programs for students, especially for those who face various problems of adapting to the new education system. The methods of support offered must be closely related to the issue captured by this study to provide adequate and effective support to students with the aim of supporting them during the online educational process. It should also be considered that these changes in the educational process can cause the emergence of adaptation problems, which can serve as support for future studies, with the aim of creating personalized intervention plans dedicated to students with problems of this type. Adherents claim that online education mediated through technology can change society for the better, but critics assert that it has failed to produce job- or career-ready graduates. [71]. These research advancements should cover the following: (a) the need to provide models to accommodate the contemporary changes in online learning, (b) review the process of digital transformation of institutions, (c) designing of more scalable and personalized online learning models, (d) designing of online learning model that will reduce the workload on the instructors, (e) redesign the learning process. [72].

In conclusion, COVID-19 constraints on schooling are a severe risk for amplifying current achievement gaps but at the same an exceptional occasion to envision schools according to empirical evidence on more effective add-on strategies for traditional educational systems. Policy makers should sustain and finance school systems to adapt and update themselves during and after the COVID-19 pandemic. [73]

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