

ONLINE EDUCATION DURING THE PANDEMIC PERIOD FROM THE PERSPECTIVE OF ROMANIAN STUDENTS

ABSTRACT

This paper presents ~~the perspectives of students~~ students' perspectives from a university in Romania regarding online education during the pandemic period. A total of 79 respondents participated in this study: 26 students of the Faculty of Letters and Science and 53 students of the Faculty of Economic Sciences at Petroleum and Gas University of Ploiesti, Romania. The age of the students is between 18-40. Online learning within these faculties took place between March 2020 and June 2021, using ~~google meet, zoom and online learning platform of the university~~ the university's google meet, zoom and online learning platform. Quantitative - A quantitative analyses - analysis procedure was used to investigate the data obtained through a questionnaire. The data analysis revealed social, economic, and educational points of view ~~of-on~~ the characteristics of online learning. The social perspective revealed the lack of interaction between students, and also between students and teachers. From an educational perspective, strengths were represented by the increase in participation in courses and seminars and easier acquisition of knowledge. From an economic perspective, students benefited from the financial aspect and the possibility of ~~part-time~~ part-time work.

Keywords: Online; education; learning; information; pandemic; ICT.

1. INTRODUCTION

On March 11, 2020, the World Health Organization declared a pandemic following an increase in the number of COVID-19 infections. Both teachers and students have contributed in equal shares to the reduction of the risk of infection with the ~~Covid~~ COVID-19 virus. Social distance was a rule of prevention. This new situation has led to the strengthening of socio-human values: reciprocity and respect. During this period, the importance of information and communication technology is observed. The transition to the information society was based on the use of information as the main resource in daily activity. Information is paramount in human activity. Digitalization contributes to the efficiency of daily and economic activity. Everything is based on online

communication that would be impossible without the Internet, the technological vector of the Information Society.

Online learning is defined as learning that uses information and communication technologies (ICTs) [1].

Advances in information technology have resulted in the uptake of online education across different disciplines and fields of ~~studies~~ study [2].

ICT has a positive impact on social and economic development. Information technology contributes to economic development by increasing the number of jobs, increasing GDP, advancing e-commerce, and increasing labour productivity.

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Access to information, access to information society services (e-health, e-government), access to education are possible due to ICT.

The commencement of online classes led to various difficulties for both teaching and learning communities, though, the internet is a major technological advancement reshaping society and universities worldwide [3].

The beginning of the pandemic was primarily fear. Rules have been set out to prevent infection. The basic rule was "social distance." For this reason, in Romania, the transition to online learning has been made since March 2020.

At the national level, the project Digitalization of Education in Romania 2021-2027 was initiated. Digitization in the field of education is based on the provisions of the National Strategy for the Digital Agenda Romania 2020. Education in this period of crisis has accelerated the transition to digitalization in education.

2. LITERATURE REVIEW

The pandemic has influenced the learning practices of many university courses [4]. Teachers were forced to change their teaching methods. Several factors were involved: the computer and Internet knowledge of teachers, and the necessary infrastructure for online learning. The pandemic crisis placed pressure on individual teachers' established teaching practices [5]. Teachers have reconsidered their courses by using new teaching methods.

Moving classes completely online requires a sacrifice and commitment from all stakeholders involved in the process [6]. Students became more responsible.

It is important that every university receives Every university must receive feedback from students regarding online education. If the pandemic continues, students' performance and success on the labour market should be analysed. Only if face-to-face classroom time can be replaced with more flexible learning conditions without reducing student performance will universities be able to offer and expand these learning formats with any long-term success [7].

The types of possible encounters that might occur online as compared to conventional classrooms differs substantially, and the impact of communicating with in one setting or another can have a direct effect on attitudes of the students and faculty [8].

Like any new situation, online education must be interpreted from the point of view of both sides: teachers and students. It is interesting to explore the key attributes to influence learning effectiveness in blended learning, including online and real-time learning [9].

Teaching methods must be attractive and understandable by students. At the end of face-to-face classes, any teacher receives feedback from students. In online education, it is harder to receive the reaction of students. Therefore, an important part of online teaching is the issuance of tests, and practical applications that students can perform constantly. Another task of the teacher is to conduct the course in an interactive way interactively in order to maintain the interest and motivation of students.

Some researchers [10] said that no pedagogical approach can replace the peak position of formal education due to having teacher-taught direct interaction. The teachers must discover teaching methods that will replace the lack of teacher-student interaction.

Both components of the educational process encountered positive and negative aspects. For students, online education is transformative in optimizing the delivery of education while saving plenty of time in commuting between home and academic institutions and reaches reaching students on any electronic device even on their mobile phones wherever they are, and whenever they want [11].

Young people use information technology for daily activities (information, and socialization on different networks). But, as shown in a paper [12], an ample number of updated researches have been conducted to understand the impact of technology on social changes, yet changes yet little evidence shows of evidence are available that have investigated the impact of online technology on higher education especially for mainstream provision in an emerging nation.

The transition to the new method of education took students by surprise. They had to adapt to the new situation. They received the news with emotions and curiosity. This curiosity led to the participation in a large number in the online meetings that followed.

Successful implementation of the learning pedagogies relies on whether students are motivated to use such online learning [13].

Students are trained at a high level to access jobs that require high-level knowledge. Regardless of their

background, university education must provide access to educational resources.

To meet the growing need for highly qualified employees in the labour market, higher education should be made accessible to broader sections of the population [14].

3. RESEARCH QUESTIONS

The opinion of the students regarding the new form of teaching is very important for teachers. Therefore, the researcher considered the students' perception relevant. The research questions were:

- Is it necessary for students and teachers to participate in classes physically?
- In online education, would students need more time to learn?
- Is ICT knowledge necessary in on-line education?

4. STUDY AIM

I wanted to find out the impact of online learning on students: advantages, disadvantages, attendance, the way of examination, knowledge acquisition, the time allocated to the individual study.

5. DATA AND METHODOLOGY

The questionnaire was made up of questions of social and educational nature. The researcher created a google form. The students of two faculties received an invitation to answer the questions. No personal data was required. Each student had to fill in the field regarding the specialization.

5.1 Study Design

The students answered the following questions:

1. What was the attendance of the courses during online learning?
2. Knowledge was acquired more easily?
3. How was the time allocated to the individual study?
4. Do you think the online system is preferable depending on the discipline?
5. What are the advantages of the online education system?
6. What are the disadvantages of the online education system?
7. Is interaction with the teacher important?

8. Do you find online examination method easier?
9. To what extent do you think computer operating knowledge is useful to attend online classes?
10. To what extent do you think Internet use knowledge is useful to attend online classes?

5.2 Data Collection Method

The survey was conducted using google forms and consisted of 10 questions. Some questions were closed type, others were open type.

The questions regarding the advantages and disadvantages of online education were open type, the other questions were closed type.

The researcher wanted to analyse aspects of the educational and social spectrum. There were questions regarding participation in classes, the advantages and disadvantages of online learning, methods of scoring (examination), the use of computer and Internet operating knowledge, the assimilation of knowledge.

5.3 Data Analysis

Quantitative approach was used for analysis of data collected from participants.

The interpretation of information was done in two groups: the students of Letters and Sciences Faculty and the students of Economic Sciences Faculty. The tables presented after each question indicate, as a percentage, the responses of the 79 respondents.

6. RESULTS

The question "What was the attendance of the courses during online learning?" was asked to find out if the students were able to attend courses and seminars. The question had closed-type answers, with the variants: higher, lower, the same as regular classroom learning (Table 1).

73% of students of the Faculty of Letters and Sciences said the frequency was higher. For 4% of them, the frequency was lower. 23% of respondents attended online courses to the same extent as on-site learning. Students of the Faculty of Economics responded that the frequency was higher for 85% of them, lower in 8%. 8% of respondents attended online courses at the same extent as in the case of on-site learning.

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Table1.Attendanceofcourses

Whatwastheattendanceof thecoursesduringonlinelearning?	AnswersfromLetters andSciencesFaculty(%)	Answersfrom Economic SciencesFaculty(%)	Totalanswers(%)
higher	73%	84%	81%
thesame	23%	8%	13%
smaller	4%	8%	6%

As a result of these percentages, the following conclusion emerges: online learning has allowed students to attend more courses and seminars.

The question "*Knowledge was acquired more easily?*" was closed type, with variants of the answer "yes", "no", [and](#) "to the same extent as in the case of on-site learning" (Table 2).

The students of the Faculty of Letters and Sciences answered "yes" in 35%, negative in a 31% percentage. 35% of respondents replied that for the acquisition of knowledge they made the same intellectual effort as in the period when the education took place on-site.

The students of the Faculty of Economic Sciences answered "yes" in a percentage of 51%, negative in a percentage of 21%. 28% of respondents replied that for the acquisition of knowledge they paid the same attention as for the period during which the education took place on-site.

These results show the processing capacity of the information received.

The question "*How was the time allocated to the individual study?*" had three answers: more, less, [and](#) the same.

For 42% of respondents in the Faculty of Letters and Sciences, the time spent on the individual study was greater. 27% of students spent less time learning individually. 31% of students have allocated the same time for individual study as for on-site learning (Table 3). For 45% of respondents in the Faculty of Economic Sciences, the time allocated to the study was higher. 15% of students spent less time learning individually. 40% of students have allocated the same time for individual study as for on-site learning.

My interpretation highlighted the following qualities of students: responsibility, motivation, [and](#) determination.

The question "*Do you think the online system is preferable depending on the discipline?*" had "Yes" or "No" as answers (Table 4).

Students believe that seminar classes in certain subjects (algebra, [and](#) computer science) can be conducted online. Most of them consider that the classes can be conducted online, especially by the fact that the course supports have been provided on the platform. The answers were divided almost equally. Almost half of students believe that any subject can be conducted online, while the other half consider that there are subjects in which physical participation is very important.

I mention that within both faculties are taught the subjects: computer science, mathematics, law, economics, accounting, foreign languages, public administration, management, accounting, [and](#) economy. Disciplines have classes and seminars.

The question "*What are the advantages of the online education system?*" was open type. Each student pointed out the advantages of teaching online from a personal point of view (Table 5).

The answers were diversified: convenience, easier attendance, earning time spent on the way to college. Based on the answers provided, it is noted that time is the most important for them (24 %). The time saved is used by some students to learn individually. 10 % of students responded that an advantage during this period was the time spent on the individual study. Most of them prefer this type of education because they don't have to go to university headquarters (16 %). This also implies financial advantages. Another advantage is that they can have a job during their studies.

[There are students who do not like this kind of education.](#) Some students do not like this kind of education. Thus, 7% of the 79 respondents believe that there are no advantages of online education. 1% of students responded that an advantage is represented by a "decrease in the risk of infection", [and](#) 3% believe that emotional blockage is a hindrance in the case of [on-site on-site learning](#). 6% of participants believe they can access materials more easily.

Other [own](#) opinions were offered in the case of the question "*What are the disadvantages of the*

onlineeducationsystem?"

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The highest percentage, 32%, is represented by the lack of collegial interaction (Table 6). 20% of respondents believe that there is no disadvantage. Internet connection is a disadvantage for 13% of students. An important disadvantage is the heavier accumulation of information, so 13% of students have highlighted this aspect.

For 4% of students, lack of teacher-student interaction is a disadvantage. 9% of them consider that lack of concentration is a disadvantage. They believe that in the comfort of their own house they cannot concentrate while the teacher offers explanations. The same category includes another 6% of students, who believe that lack of physical participation in the classroom could cause disinterest of students.

It is noted that the disadvantages are of a socio-psychological nature.

The next question, "Is interaction with the teacher important?" was meant to complete the answers to the previous question. 95% of all responses (from 79 respondents) were positive, the students believed that it is important to interact with the teacher. The negative response was provided by 1% of students, and 4% of them felt that sometimes there was a need for interaction (Table 7). The answers to this question reinforced the idea of the need for educational partnerships.

The next question "Do you find online examination methods easier?" was stated to find out the students' opinions about the final examination. The following examination methods were used: grid test, essay, and practical applications. For 50% of students of the Faculty of Letters and Sciences, the examination methods were easier. 4% of students find it not easier. 46% of students believe that examination methods

have the same level of difficulty (Table 8). For 64% of students of the Faculty of Economic Sciences, examination methods were easier. 8% of the students think they're not easier. 28% of students believe that examination methods have the same level of difficulty.

The question "To what extent do you think computer operating knowledge is useful to attend online classes?" was closed, and students were able to choose from the variants: useful, very useful, useful minimum knowledge, are not useful (Table 9). 35% of respondents from the Faculty of Letters and Sciences said they need minimal PC operating knowledge to attend online courses. 23% of students find PC knowledge is useful. 42% of students are of the opinion that PC operating knowledge is very useful. 40% of respondents from the Faculty of Economic Sciences said they needed minimal PC operating knowledge to attend online courses. 2% of students consider that PC knowledge is useful. 57% of students think that computer operations knowledge is very useful. The remaining 1% consider that no computer operating knowledge is useful. As for the digital competence indicator, base level, and basic level, 31% of Romanians were ranked in 2020. For students, the percentage of those with basic or higher basic skills was 29% in 2020 [15].

The students also answered the question "To what extent do you think internet use knowledge is useful to attend online classes?" (Table 10).

For 38% of respondents from the Faculty of Letters and Science, Internet use knowledge is very useful in order to attend online courses. For 66% of respondents in the Faculty of Economic Sciences, Internet use knowledge is very useful.

Table 2. Knowledge acquisition

Knowledge was acquired more easily?	Answers from Letters and Sciences Faculty (%)	Answers from Economic Sciences Faculty (%)	Total answers (%)
yes	35%	51%	46%
the same	35%	28%	30%
no	31%	21%	24%

Table 3. Time allocated for individual study

How was the time allocated to the individual study?	Answers from Letters and Sciences Faculty (%)	Answers from Economic Sciences Faculty (%)	Total answers (%)
more	42%	45%	44%

thesame	31%	40%	37%
less	27%	15%	19%

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Table4.Compatibilitybetween disciplinesandonline teaching

Doyouthinkthe online systemispreferable dependingonthe discipline?	AnswersfromLetters andSciencesFaculty (%)	Answersfrom EconomicSciences Faculty(%)	Totalanswers(%)
yes	62%	50%	56%
no	38%	50%	44%

Table5.Theadvantagesoftheonlineeducationsystem

What aretheadvantagesof theonlineeducations ystem?	AnswersfromLetters andSciencesFaculty(%)	Answersfrom Economic SciencesFaculty(%)	Totalanswers(%)
moretimetolearn	9%	11%	10%
commute	17%	14%	16%
none	13%	0%	7%
participation	13%	7%	10%
time	26%	18%	24%
job	13%	16%	15%
intimidation	4%	2%	3%
flexibility	0%	9%	5%
decreaseinriskofinfection	0%	2%	1%
accessmaterials	0%	11%	6%
commodity	4%	7%	6%

Table6.The disadvantagesoftheonlineeducationsystem

What arethedisadvantage softheonline educationsystem?	AnswersfromLettersa nd Sciences Faculty(%)	Answers fromEconomic SciencesFaculty (%)	Total answers(%)
nodisadvantage	19%	19%	19%
lackofinteraction	24%	28%	26%
Internetconnection	12%	13%	13%
communicationteacher- student	8%	8%	8%
lackofinterest	12%	11%	12%
heavieraccumulationof information	8%	13%	11%
lackofconcentration	19%	8%	13%

Table7.Theimportanceofinteractionbetweenstudentandteacher

Isinteractionwiththet eacherimportant?	AnswersfromLettersa ndSciencesFaculty (%)	Answers fromEconomicScie nces Faculty(%)	Totalanswers(%)
yes	96%	91%	95%
no	4%	0%	1%
sometimes	0%	9%	4%

According to dataprovided by theNational InstituteofStatistic'sStatistics,in2020,overthreequarte rsofhouseholds in Romania (78.2%) have access to theinternetnetworkathome.Inurbanareas,84.8%of

householdsareconnectedtotheInternet,andinruralareaso nly69.7%of households[16].

TheresearcherinterpretedtheanswersobtainedthroughS WOTanalysisas well.

The **SWOT analysis** of the answers show the following aspects:

Strengths:

- Participations, 81% of respondents indicated that they attended courses more during this period
- Time, an advantage of online learning presented by 24 % of respondents, and 16 % replied that they no longer have to commute, which involves financial benefits.
- Motivation, 44% of students responded that the time allocated to the individual study was higher.

Weaknesses:

- Social interaction, 28 % of students presented this as a disadvantage of online learning
- Lack of interest, 12% replied that they could not concentrate on teachers' instructions if they were not in the classrooms

Opportunities:

- Technical advantages – 62% replied that their Internet browsing knowledge was useful, and 52% replied that their PC operating knowledge was useful

- getting a job during school placement is presented as an online learning advantage for 15% of them.

Threats:

- Technical difficulties – 15% responded that a weak Internet connection represents one disadvantage

Examining these aspects, the researcher has carried out an analysis of the characteristics of online learning from a social, economic, and educational point of view (Table 11).

Analysing the social side, the investigator encountered a major disadvantage, a weak point, the lack of interaction between students, but also between students and teachers.

From an educational point of view, strengths were represented by the increase in participation in courses and seminars and easier acquisition of knowledge.

From an economic point of view, the advantages for students were the financial benefits (they did not spend money on commuting) and the possibility of having a job.

Table 8. Examination's methods

Do you find online examination method easier?	Answers from Letters and Sciences Faculty (%)	Answers from Economic Sciences Faculty (%)	Total answers (%)
yes	50%	64%	59%
the same	46%	28%	34%
no	4%	8%	6%

Table 9. Computer operating knowledge

To what extent do you think computer operating knowledge is useful to attend online classes?	Answers from Letters and Sciences Faculty (%)	Answers from Economic Sciences Faculty (%)	Total answers (%)
Very useful	42%	57%	52%
useful minimum knowledge	35%	40%	38%
useful	23%	2%	9%
Noneed	0%	1%	1%

Table 10. Knowledge internet use

To what extent do you think Internet use knowledge is useful to attend online classes?	Answers from Letters and Sciences Faculty (%)	Answers from Economic Sciences Faculty (%)	Total answers (%)
very useful	38%	66%	57%
useful minimum knowledge	31%	15%	20%
useful	31%	19%	23%
noneed	0%	0%	0%

Table 11. Economic, social and educational side of e-learning

Side	Advantages	Disadvantages
economic	Job; financial benefits	-
social	-	interaction
educational	Participation; easier to acquire knowledge	-

7. CONCLUSION

Access to education is possible due to ICT. Online education would have been impossible without the Internet.

The Covid 19 period was new for all: students and teachers. Both sides have rebuilt their work into teaching/insuring knowledge. This period reminded us of Aristotle's philosophy in which **human-being humans was were** regarded as a social being beings.

Students have become more responsible in managing time and effort regarding **the their** study. Online learning has allowed students to attend more courses and seminars. For the acquisition of information, they paid the same attention as during the period during which the education took place on-site. The students believe that it is important to interact with the teacher.

From an educational point of view, **an** increase in participation (courses and seminars) and easier acquisition of knowledge are strength points. From an economic point of view, the advantages for students were the financial benefits (they did not spend money on **the** commuting) and the possibility of having a job during schooling.

REFERENCES

- Chang TY, Hsu ML, Kwon JS, Lindawati M.F., Kusdhany S., Hong G. Effect of online learning for dental education in Asia during the pandemic of COVID-19, *Journal of Dental Sciences*. 2021; 16: 1095e1101.
- Delva S, Nkimberg M, Chow S. Views of regulatory authorities on standards to assure quality in online learning education, *ScienceDirect, Nur's outlook*. 2019; 67: 747-759.
- Selvaraj A, Vishnu R, Ka N, Benson N. Effect of pandemic based on line education on teaching and learning system, *International Journal of Educational Development*. 2021; 85: 102444.
- Bao W, **COVID-19 COVID-19** and online teaching in higher education: A case study of Peking **University University**, *Human Behavior and Emerging Technologies*. 2020; 2(2): 113-115. Available: <https://doi.org/10.1002/hbe2.191>
- Damsa C, Langford M, Uehara D, Scherer R. Teachers' agency and online education in times of crisis, *Computer in human behavior*. 2021; (106793). Available: <https://doi.org/10.1016/j.chb.2021.10.6793>
- Wang C, Horby P W, Hayden F, Gao G. A novel coronavirus outbreak of global health concern. *Lancet*. 2020; 395(10223): 470-473.
- Müller C, Mildnerberger T, Facilitating flexible learning by replacing classroom time with an online learning environment: A systematic review of blended learning in higher education, *Educational Research Review*. 2021; 34: 100394
- Muthuprasad T, Aiswarya S, Aditya KS, Jha GK. Students' perception and preference for online education in India during **COVID-19 COVID-19** pandemic. *Social Sciences & Humanities Open*. 2021; 3: 100101. Available: <https://doi.org/10.1016/j.ssaho.2020.100101>
- Law KM. Teaching project management using project-action learning (PAL) games: A case involving engineering management students in Hong Kong. *International Journal of Engineering Business Management*. 2019; 11: 1-7. Available: <https://doi.org/10.1177/1847979019828570>
- Mishra L, Gupta T, Shree A. Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. *International Journal of Educational Research Open*. 2020; 1. DOI: 10.1016/j.ijedro.2020.100012
- Manar N, Fathieh AM. Nursing Faculty Experience With Online Distance Education During COVID-19 Crisis: A Qualitative Study. *Journal of Professional Nursing*; 2021. Available: <https://doi.org/10.1016/j.profnurs.2021.06.002>
- Gazi MA, Soaib A. Online technology: Sustainable higher education or diploma disease for emerging

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- emergency—comparisonbetweenpreandduring
COVID-19, Technological Forecast
& Social Change. 2021;172:121034.
Available: <https://doi.org/10.1016/j.techfore.2021.121034>
13. Tang YM, Chen PC, Law MY, Wu CH, Lau Y, Guan J. Comparative analysis of Student's liveonlinelearningreadinessduringthecoronavir
us(COVID-
19)pandemicinthehighereducationsector,Comp
uters&Education. 2021;168:104211.
DOI:10.1016/j.compedu.2021.104211
 14. OrrD,LuebckeM,SchmidtJP,EbnerM,Wannema
cherK,EbnerM,etal.Fromlinesofdevelopmentto
scenarios.Highereducationlandscape2030.Spring
erBriefsineducation.Springer, Charm;
2020.Available:<https://doi.org/10.1007/978-3-030-44897-42>
 15. Available:<http://www.ccins.ro>
 16. Available:<http://www.edupedu.ro>