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The Potential of Higher Education in Economics in Relation to Online Education

Patrik Viktor, Judit Kárpáti-Daróczi

Obuda University Keleti Károly Faculty of Economics

Abstract: I was very interested in the techniques and the aspects of Online education since the start of my studies. I also chose this topic because, as a student, I have experienced for myself that the quality of the curriculum can greatly influence the attitude towards the subject and the acquisition of the curriculum. My main motivation is to contribute to the further development of online education by exploring the opinions of students with my suggestions. In my dissertation, I examine the possibilities of online education under Covid-19 from the perspective of students in higher education in economics. I examine, among other things, the impact of the epidemic on their studies, the quality of education, and the direction in which the standard and method of education have moved. In the first half of the dissertation, I describe the concept and methodology of online education by reviewing a wide variety of available literature. After this, I present the situation under the coronavirus, the online interface used in education, and the methodology of teaching and learning. Based on secondary research, I also address the opinions of educators about online education. In the framework of my primary research, I interviewed the students of 5 higher education institutions in the field of economics in Budapest with a questionnaire survey. A total of 582 students completed my questionnaire. The obtained results were interpreted with the help of statistical analyses. The study concludes with a summary and conclusions, and finally, I make suggestions based on the results obtained.

Keywords: online education, Covid-19, higher education, economics, student experience

Introduction

The importance of higher education institutions, teaching and researching activities has been undeniable for centuries and, especially today, they play a very important role in society and the economy. At the same time, they face unprecedented challenges in the 21st century as the world accelerates, its complexity increases, and the extraordinary development of technology is undeniable. Although the activities of the institutions will not change significantly in the future, as they will remain the main scene of education and research, they will have to adapt to the changing environment in their way of operation and applied teaching methods.



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I also chose this topic because, as a student, I have seen that the quality of the teaching materials can greatly influence the attitude to the subject and the learning of the curriculum. That is why in my paper I look only at the effects of online education in higher education on the field of economics.

My main motivation is to explore the views of students and contribute to the further development of online education with my suggestions.

My main experiences/observations are on online education in the researched institutes is that; There is no uniform use of interfaces among teachers, and neither is the delivery and requirements of online materials are given. Based on this, my hypotheses are as follows:

H1: Those students who prefer online to offline education schemes are indicating more positive responses than offline students.

H2: Those students who prefer online education schemes can adapt to online platforms much more effectively than offline students.

H3: Those students who prefer online education schemes are commanding more technical tools than offline students.

H4: Considering the experiences of online education schemes a difference may be detected based on the sex (males, females) criteria.

As a student, I have always been mindful of how to learn more effectively, efficiently, and enjoyably. During my university studies, and as an economics student, I began to care about how IT and smart tools, which may have been used too much in our daily lives, could be used for the benefit of learning and development.

In my paper, I intend to present online education as a driving force for higher education in economics to reform learning and the ways students can acquire the information they need. I am looking for answers on how to use these tools for learning, what educational apps and web interfaces are available in the digital era. To do this, I will look at and compare students from 5 higher education institutions, which students had to learn online in the past months, using a very similar model of education.

On the one hand, I aim to explore and analyze the current state of online teaching of Hungarian higher education in economics from the point of view of the students. Furthermore, I aim to identify the experiences of the forced online transition caused by the coronavirus, what are the novelties, experiences, and methods that can be used in the future and to improve the quality of online education.



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Online education

When examining the literature, I found that online education, translated into Hungarian, does not have a uniform definition of e-learning that is accepted by all. Instead, several conceptual definitions overlap. This is because the phenomenon is still in a very early, developing form, its interpretation is constantly changing and expanding as technology advances. Here are the definitions that are most relevant to the subject of the paper.

According to the European Commission's Online Education Action Plan (2001), online education can be called all educational processes that use the Internet and various multimedia technologies to make learning more efficient, improve its quality, and to support remote access and group work. Komenci puts it similarly: "Developments, programs, and teaching materials, which can be summarized as online education, are forms of the learning organization, learning management and learning support that is based on three well-circumscribed sources: computer-aided learning, internet learning, and distance learning." (Komenci, 2004: 34)

In the book of Hutter et al., online education is "an open form of training available on a computer network, independent of space and time constraints, which organizes the teaching and learning process and makes the curriculum and student resources, tutor-student communication, and computer interactive teaching software available to the student in a uniform framework, with effective, optimal knowledge transfer and learning methods." (Hutter et al. 2005: 14.)

According to Kovacs, the following interpretations of online education are most common in the vernacular:

- teaching and learning activities/processes by electronic means
- teaching and learning technology by electronic means
- computer, information, and communication technology (Smith, 2011)

However, he also notes that it is such a complex concept that it cannot be narrowed down to a single definition. In its interpretation, 'e-learning is a new form of studying and education method that can be used both to be integrated into an organized system and can be used flexibly to meet individual needs through the given opportunities of the new e-learning techniques compared to the classical learning environment achieved by traditional means. The latter is also called independent, individual, in-learning outside the school system." (Smith, 2011:60 pp)



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The common feature of the definitions described is that online education is defined as education aided or carried out through technological means. We can therefore see that online education is both a methodology for e-learning and a system that provides an interface for e-learning. In my paper, I will look at online education as a tool for learning. (Kelli&Keith,2020)

Curriculum content

Content is the most important element of any online education system. We could have any good framework, a correctly selected type of online education if the content offered is of inadequate quality, carries outdated information, or simply does not provide enough in appearance. The primary consideration we need to address when creating electronic learning materials is that we are preparing content for non-traditional education. Thus, it is not only necessary to make the textbook text available in electronic form, for example by typing into a slide show, but also to take advantage of the possibilities of information and communication technology tools which are available to us in this new situation. (Kovács,2008) Teachers now can easily add multimedia content to the curriculum: images, audio, and video and interactive parts. It may be helpful to include a guide so that the student understands how to learn in that system or application. It is important for the student to feel motivated to carry out the e-learning studying, requirements, and to make independent research on the subject to obtain additional information, which contributes to deepening knowledge. To create an appropriate online education curriculum, we need to know the target audience: we need to know who we are talking to and what are the most effective means of reaching them. It is advisable to be direct and to-the-point in the tone of the curriculum, as this can also help you to understand the curriculum better. As it is an electronic education, efforts should be made not to make a part of the curriculum too long, as this may be at the expense of efficiency. The individual sections of the curriculum should be ratified and tasks for knowledge control should be carried out at the end of each phase, thus avoiding monotony on the one hand and the option to give feedback on whether it is necessary to carry out further repetition should be mandatory. It is important to provide feedback to online education users and, if necessary, to change the structure or content of the curriculum based on their ideas. (Galena, et. al, 2019)

We can see that all in all, there are more benefits of using online education than disadvantages. And the downsides listed are slowly being "outset" by society: it will be natural that the active, continuous use of ICTs is essential in all areas of life, including education. Positive examples can also change the attitude of old-fashioned people. Overall, online education has practical advantages that make its use attractive compared to traditional teaching methods. (Arshavskiy,2020)



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The present of online education

As I close the theoretical chapter, I will demonstrate the new trends and methods that dominate online education today, as well as what is expected in the future in the field of electronic education. The 5 higher education institutions I have examined are all using the same MOOC family as the system for online education, so this infrastructure and its attributes will be the basis for my investigation. (Kovács, 2011)

MOOC

The acronym behind the massive online open course is one of the most complete uses of online education: it offers an educational environment that allows a large group of students to take online courses in any subject area at any preferred time by the student. Teachers come from elite universities and teach through videos and presentations. Also, students taking part in the course can contact students and instructors with similar interests. Students who complete the course can also obtain a certificate. (Conache et.al., 2016)

Although many universities have held internet and video courses since the turn of the millennium, MOOC's start date is 2008, when George Siemens and Stephen Downes announced their „Connectivism and Connective Knowledge „ course, which was attended by more than 2,000 people around the world. The big explosion occurred in 2011 when two Stanford University lecturers opened the application for an artificial intelligence course. Although they expected a student camp of up to a few thousand students, a total of 160,000 students eventually took part in the course. (Michael & Hommer, 2019)

The benefits of MOOCs include the benefits of online education: they bridge geographical and temporal barriers, allow the curriculum to be processed and repeated at an independent pace, and make the knowledge acquisition process available to all.

The most common reviews of students using MOOC (Baturay, 2015):

- most of the students involved are students over the age of 18
- the average time of a course is between 5 and 12 weeks
- training videos are 5-10 minutes long, mostly in English
- due to the high number of participants, accountability takes the form of multiple-choice tests and online surveys

There are two distinct groups of MOOCs: cMOOC and xMOOC (content-based). A cMOOC for the connectivity indicates that knowledge acquisition takes place in a network in which learners are connected through digital platforms and they can



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communicate and acquire the information together. That is how their knowledge develops and they receive a wide variety of knowledge. (Michael&Hommer,2019) xMOOC, on the other hand, is more like traditional education. This is essentially an extension of the classical pedagogical methods practiced within the institutions. (Yuan - Powell, 2013) Today, most MOOC systems follow the xMOOC approach. According to the founders, this is not the right direction: Downes and Siemens said in an interview with them that the goal of creating the MOOC was to encourage students to work with other students to acquire the knowledge, building on each others' ideas, with continuous self-improvement. However, modern MOOCs do not emphasize on interactive and dynamic learning approaches. Education is static and passive. Moreover, in most cases, the pedagogical method used in the MOOC systems also shows the same decades of lag and inflexibility, just like in regular education. (Unger& Meiran, 2020)

This is one of the biggest challenges facing online education: it is not enough to involve only ICTs in the learning process, but also to make a complete pedagogical-methodological shift.

Gamification

One of the newest and most popular trends of our time is gamification. I turned to literature to clarify the concept accurately. I would like to highlight the following two definitions: Gamification is the process of incorporating game mechanisms into programs, platforms, and processes that traditionally do not contain such elements. (Swan, 2012) "One of the most effective ways to learn is through games or playful learning. This approach is also used by the gamification methodology."

If you search for the word gamification and look at its most common uses, education is mentioned first almost every time. This is because gaming can eliminate the lack of attention, commitment, and interest in learning. It increases the enjoyment of the education process and the experience contributes to the success of learning. Also, the power of novelty can act as a motivational factor for students: a renewed educational environment attracts their attention, and they are more interested in learning. (Baxter et al., 2016) Its advantages include immediate feedback on the student's current performance and can be applied to almost any educational field. (Pethő,2004)

In addition to classrooms, gamification can be found mainly in the business sector, corporate training, marketing, and customer relationship-enhancing solutions, as well as in health care. As with learning, they build on the principle that people's interest and activity can be aroused more easily and maintained by motivating and encouraging them to carry out a task through playful processes. The use and incorporation of



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Mobile learning

As I noted in the introduction to the paper, the use of smart devices, especially phones and tablets, is now so widespread that many people almost do not use desktops or laptops at all. Also, it is given that these tools are also more and more used for learning.

This has brought to the fore mobile learning, M-learning in English, where the learning process takes place largely or entirely on mobile devices. Experts say that in a few years this trend will dominate the online education market. M-learning allows you to learn on smartphones or tablets that are already on hand, so you do not have to change your normal rhythm of life to gain knowledge. M-learning gives you complete freedom: you can learn anywhere, anytime. Other benefits include: facilitating teamwork and communication and collaboration opportunities, sharing and exchanging knowledge, and easy implementation of gamification elements in mobile phone applications. This increases the motivation of users and makes learning more effective. And the modern location feature in your devices allows you to access content that is relevant to your location. (Kochattil, 2016)

M-learning is applied over a broad spectrum. The most common use is language learning. There are already many apps for phones and tablets that help you



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memorize foreign words visually using images. Mobile learning apps that support the development of creative skills or hobbies (e.g., instrument learning, drawing skills development, or baking and cooking apps) are also popular. Its growth potential lies in this: it can be used not only in school education, or in a corporate training environment, but also to acquire any new knowledge through M-learning.

Although M-learning is not yet nearly at the same level of use as MOOCs, more and more learning-supporting apps are being created for phones and tablets. This trend will be further strengthened in the future, as M-learning is perfectly suited to making learning part of everyday life and realizing the lifelong learning approach. Online education through smart devices gets to more people: learning apps available on mobile are either completely free or significantly cheaper than other online education systems. The continuous development of smartphones and the increase in data transfer speeds also promote the development of M-learning. (Angelova,2020)

Universities examined:

In my dissertation I examined the students of 5 higher education institutions. My choices were the University of Corvinus, University of Economics, University of Obuda, University of Kodolányi János, and University of Eötvös Lóránd. I analyzed the given education, meals, use of services, transport connected to these institutes. The main aspect was to analyze these universities was, that these 5 institutes provide a very similar range of training in the field of economics.

Coronavirus

In 2020, the world was hit by an epidemic. The Covid-19 epidemic. The virus reached Hungary in March. In response, our government closed the borders and introduced a curfew. As a result, the current rules/methods of higher education have been abolished. Everyone was forced into the online space. There was no way to go to universities, so the transformation of higher education in economics to full online form had to begin.

COVID 19 Technology Adaptation

People resist change without understanding its necessity and importance, and when a situation arises, everyone must adapt willingly and unwillingly to change. This was the situation that also arose in the teaching of the instructors. Higher education institutions use a variety of pedagogies to innovate, develop, and engage students. Many faculties resisted the changes when asked to attend virtual classes for students. (Adnan & Anwar,2020) Hungarian higher education institutions identified 5 modular points in which that they had to decide: (This is the situation of higher education institutions before the Coronavirus, to e-learning subjects)



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- Interface usage
- Hours
- How to stay in touch
- Accounting method
- Location of watch materials.

At the beginning of the epidemic, 3 modular systems were considered for the use of space in higher education institutions. Skype, Zoom, and Teams. In this race, 2 competitors, Skype and Zoom, were soon eliminated. Thus, Teams, as the sole competitor, soon covered a large part of the higher education market.

At first, there were many easy and given ways of keeping up with the change without big differences, teachers could upload their presentations online. Teams meetings could be recorded and uploaded so students could reach it easily at any time they wished. Participants mainly liked email and other online forms of communication.

Method of accountability: Essay in established systems by nature or by question method. There were several methodologies for sharing lesson materials, such as uploading to online interfaces, emailing, and holding lectures online on a given timetable.

Methodology

I conducted my analysis in a questionnaire form among higher education students. My questionnaire received 587 replies between 30 March 2020 and 30 September 2020. The questionnaire contains 40 questions. It included multiple-choice, essay questions as well as scale values. I set the scale values to a 5-degree Likert scale. Since I thought students were also measured on a 5-degree scale, they were better able to interpret what each value meant. In evaluation, I used general descriptive statistics, as well as Pearson's correlation analysis, to determine the relationship between each question. My research is not representative.



Correlation analysis

To carry out Pearson's correlation analysis of the research, I shaped the numerical value of each text response. So, I looked at the correlation between questions and answers. The strength of the correlation was defined as follows.

There is a strong correlation above 0.55.

The correlation is moderately strong from 0.4 to 0.55.

0.3-0.4 between medium correlation.

There is a weak correlation between 0.2 and 0.3.

There is no correlation below 0.2.

Evaluation

Respondents were 58.8% male and 38.1% female. In the research, the male majority can be determined. Respondents were 71% between 19 and 23, while 28% were aged 24-27 and a total of 1% were older than 28 years. 63% of respondents go to bachelor's and here the distribution of men is 84%. Bachelor's respondents are the backbone of the research. 28% of respondents go to vocational training, while only 8% are studying for a master's degree.

My first question is how much they love online education. 53% of respondents prefer the online form, where no significant difference can be identified. A single response is reflected, suggesting that no significant difference can be identified on this basis. When asked what experience they have in online education, 60% of respondents have mixed experience, which is also noticeable here that 90% of rural respondents have mixed experience while 86% of respondents who live in the capital have a positive experience in this regard. (Table 1)

What is your experience with online education?			
	Mixed	Positive	Negative
Capital	1%	86%	13%
Region	90%	2%	8%

Table1: What is your experience with online education?

source.: own research



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When asked which online learning methodology was preferred by the respondents: 60% of them replied that it was the presentation methodology, while 30% still preferred their notes from the lessons. It could be stated that most girls (95%) prefer learning from their notes. 95% of respondents use Messenger as their primary form of communication, while 99% of them use e-mail as an official form.

According to the five-stage Likert scale, 87% of respondents had a complete change in their learning habits. According to 82% of respondents, online education makes it easier to meet the requirement of the subject. But when asked at what level - according to respondents: 76% said that there was a weak correlation between these 2 questions. It turned out that those who had a simpler acquisition of the subject gained less knowledge.

On the following question, respondents said the following 3 positive things about online learning:

- Free time 67%
- Travel time/travel costs 23%
- Quick consultation 10%

3 key negative responses:

- Different lessons quality 59%
- Less motivated in learning 21%
- Rudimentary 20%

When asked what respondents were using for learning and to join online classes, 87% uses computers, 10% telephones, and 3% tablets. It can be stated that on average 70% of respondents have a phone, computer as well as a tablet. In total, 15% of them do not have all the tools required to join online classes. Here, a significantly strong correlation is observed at 0.84. There is a strong correlation between the number of machines owned by the given student and their liking of online education. 78% of respondents have 5 or more devices.

During online education, 66% of respondents had to share the student's space with someone. 44% of those surveyed shared the devices with their siblings, 20% with their partner, and 2% with other persons.



Correlation analysis

In the correlation analysis, I examined Pearson's edge correlation among the following questions.

- 1. Do you prefer online or offline learning?
- 13. A Are there any contact lessons?
- 13. B During classes are you doing anything else than just listening?
- 13. C Do you dress for online classes?
- 14. What technical means do you have?
- 17. How many technical tools do you have?
- 19. Average age of your technical equipment?
- 22. What form is the curriculum in?

Online education in economic higher education correlation analysis										
	1. question	13. question	13.A question	13.B question	13.C question	13.D question	14. question	17.question	19.question	22.question
1. question	1,00									
13. question	0,33	1,00								
13.A question	0,39	-0,15	1,00							
13.B question	0,41	0,39	0,37	1,00						
13.C question	0,57	0,22	-0,24	0,54	1,00					
13.D question	0,40	0,25	0,23	0,47	0,65	1,00				
14. question	0,77	0,10	0,23	0,33	0,06	0,11	1,00			
17.question	0,41	0,32	0,18	0,55	0,55	0,52	0,17	1,00		
19.question	-0,46	-0,05	0,00	0,13	0,31	0,31	-0,09	-0,10	1,00	
22.question	-0,09	0,07	0,16	0,16	0,14	0,09	0,18	-0,19	0,51	1,00

Table 2 Correlation analysis

source: own research

I compared the questions above one by one to create statements based on the research. As it can be seen from Table 2, those who like online learning have several technical tools at their disposal, so there is a strong correlation between these two attributes. (0.76) There is a medium-strong correlation between the average age of the technical tools of students are using and between how much they like online education (0.4). The younger the age of the used technical device, the more respondents prefer to learn from uploaded PPTs rather than their own notes created in classical classes. A moderately strong correlation can be described here (0.52). Those who can do more with less in lessons because they have few lessons retained still have less time to learn than those who have had more hours. There is a negative



correlation between the number of lessons held online and the time spent studying by a student alone, meaning that even though the students have more free time caused by online education, they will study less by themselves (-0.23). It turns out the more flexible is the schedule, the harder it is to take on education (0.54). Learning about Zoom was as difficult for respondents as it was for Skype (0.43). Learning Teams did not cause any extra difficulty compared to learning Skype either (0.40).

Conclusions

Based on my research, I accept/deny the following hypotheses.

1. Students who prefer online education to offline education can report more positive experiences than those who prefer offline education.

Based on the questionnaire research, respondents who prefer 89% talk about positive experiences. On this basis, I accept my first hypothesis.

2. Students who prefer online education have more easily mastered different online platforms than students who prefer offline education.

Neither the correlation analysis nor the questionnaire survey showed that clear that there would be any link between preferring online education and mastering the new required tools for learning. From the questionnaire it turned out that only 64% of students who have relatively modern and up to date technology prefer online lectures. Based on the survey there is no connection between technical knowledge and the preferred type of education, on this basis, I reject my second hypothesis.

3. Students who prefer online education have more technical tools than students who prefer offline education.

From the correlation analysis, it can be clearly stated that there is a strong correlation between the two factors, those who like online education have more technical tools, and, based on the questionnaire, 79% of students who prefers online education has more modern and new devices than those who prefer studying in the classical form. Based on the analysis and the answers from the questionnaire I accept my third hypothesis.

4. Considering the experiences of online education schemes a difference may be detected based on the sex (males, females) criteria.



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In my research, I have not found any evidence that there is any link between preferring online education and the gender of the responder. Based on the research I did not accept the fourth hypothesis.

Summarizing the primary research, I will show you the advantages and disadvantages of online education in higher economical education based on the answers from the questionnaire. These aspects are subjective in a sense since students can decide which qualities are positive and which are negative in their cases. In the following list, according to the questionnaire survey, I will show the advantages and disadvantages of using online education systems.

Advantages:

- Space and time independence provided,
- May be used both for individual and group teaching,
- The teaching process, materials, and environment may be personally tailored,
- The teaching material may be updated and extended regularly,
- Rehearsable and accessible unlimitedly,
- Serves the life-long learning model,
- Ensures rapid information flow,
- Small and medium enterprises and large organizations may use it for employee development schemes.

Disadvantages:

- Non personalized form of education,
- Several disturbance factors may decrease the attention of participants,
- For several users especially from the older generation it may be more difficult to ensure learning, using computers or tablets,
- The culture of individual independent learning has not been adopted fully yet,
- Space and time independence may cause that appropriate time will be not devoted to studying.

During my research, I have come to these results and findings.

Summary

The main purpose of my paper was to make known the situation of online education under COVID-19 in higher economical education known. I examined the subject



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from a theoretical point of view and carried out primary research in a form of a questionnaire. In the primary research, I was curious about the students' opinions on how they had experienced, how they lived, what they liked, and what they did not prefer about the online education methods. What they thought the advantages and, disadvantages of online education were.

In the first part, I dealt with detailed literature about online education. After a brief presentation of the development of education, I first defined the concept of online education through several definitions, reviewed the history and stages of its development, and examined its types, structure, and functioning. I also introduced today's most popular e-learning trends: MOOC systems, gamification, and mobile learning.

In the framework of the primary research, I conducted a questionnaire study among students from 5 higher education institutions in the field of economy to get a clear view of the most common online education standards used today. I analyzed 587 responses in total using statistical methods. In the paper, I presented the results of the answers and then verified/refuted the hypotheses I had set up before starting the research.

The primary research partly confirmed the expectations of the study. First hypothesis: Students who prefer online education to offline education have reported more positive experiences than those who prefer offline education. In the questionnaire, 89% of those who preferred online education talked about positive experiences.

My second hypothesis has not met the expectations. Neither the correlation analysis nor the questionnaire survey showed clear evidence to prove that there was any link between those who prefer online education and those who use more modern and newer technologies for studying.

I accepted my third hypothesis, because, from the correlation analysis, there is a strong correlation between the following two factors. People who like online education have more technical tools, and more than 79% of respondents who like online education have newer and technologically advanced devices.

I rejected my fourth hypothesis, as I have not found any evidence that the people interviewed determined their attitude to online education could be defined only by their gender.

In the last paragraph, based on the research and the analysis I concluded the positive and negative effects of online education. Based on the study, I have made suggestions for the future of online education. Methods to improve the system and



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to motivate students evermore. Finally, I set out the main direction of my subsequent research on the future of online education.

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