

## Examination of online education experiences from stakeholder perspective – a Hungarian case study

László Buics<sup>1</sup>, Péter Földesi<sup>1</sup>, Orsolya Putz<sup>2</sup>, Zoltán Varjú<sup>3</sup>, Zsolt Csaba Horváth<sup>4</sup>, Boglárka Eisingerné Balassa<sup>5</sup>

<sup>1</sup>Department of Marketing and Management, Széchenyi István University, Hungary,

<sup>2</sup>Department of American Studies, Eötvös Loránd University, Hungary, <sup>3</sup>Crow Intelligence,

<sup>4</sup>Department of Railway Vehicles, Aircrafts and Ships, University of Technology and Economics, Hungary, <sup>5</sup>Department of Marketing and Management, Széchenyi István University, Hungary.

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### **Abstract**

*With the rise of Covid-19, higher education has undergone a major transformation. Prior to the pandemic, many universities offered online courses, but the majority of universities were characterized by face-to-face teaching. The goal of this research is to find out students' and teachers' opinions on the online education introduced in the first phase of Covid, with the help of a survey. As teachers had to react very quickly to the situation, the research would like to assess what worked well and what didn't during the online education period, what is in the focus of positive and negative opinions. The aim of this survey is to get feedback from students and faculty members regarding their experiences with online education during Covid.*

**Keywords:** *Online teaching; online education; covid-19, survey.*

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## **1. Research Background**

With the rise of Covid-19, higher education has undergone a major transformation. Prior to the pandemic, many universities offered online courses, but the majority of universities were characterised by face-to-face teaching. The aim of this research is to find out students' and teachers' opinions on online education introduced in the first phase of Covid. The research also intends to find out in which areas do students and teachers have a more negative and in which areas a more positive opinion. The aim with this survey is to get feedback from students and faculty members on the online education which they experienced during Covid. In this study, we present the opinions of the two target groups, the similarities between the opinions and the correlation between the responses, and cluster the students and the teachers into groups according to their attitudes towards online education.

There has been a lot of research on the introduction of online education under Covid-19. In the literature review, we provide an essential overview of the research findings that present the opinions and experiences of both students and faculty members in relation to online education. Rafique et. al. (Rafique, 2021) conducted a survey involving 340 students to draw attention to several factors: (1) the interactivity of online education, including students' lack of self-efficacy in posting questions during an online discussion. As a result, the students performed poorly during the semester; (2) the students lacked knowledge in the use of IT tools and needed to be taught by the IT department of the university; (3) lack of knowledge about the organisation of learning, insufficient time management. They found it difficult or impossible to keep their attention focused solely on learning; (4) The role of university administration was also highlighted (Nambiar, 2020). A monitoring system should be established to monitor student activity during online classes. Tang et al. (2021) also examined the faculty and student side in their study. A total of 35 measurement items were used and “five contributing factors, technology readiness, self-directed learning, learner control, motivation for learning, and online communication self-efficacy, were used for investigation (Tang, 2021, p. 13.).

According to these suggestions include the importance of lecturers to offer different solutions for students with different attitudes: more active group work, designing online tools to increase learning efficiency. For lower level students, more intensive online activities should be introduced, such as virtual games. A new area of technological problems related to online education is highlighted by Augustina and co-authors (Augustina et al., 2020). Not only for students in higher education, but also for secondary school students, there was a lack of direct communication between teachers and students.

Mulenga, & Marbán's (2020) survey in Zambia also draws attention to the former factors. In addition, a similar conclusion was reached by Adnan, M., & Anwar, K. (2020) in a study conducted in Pakistan. Based on their research, it can be said that online education cannot be

effective in developing countries like Pakistan. The reason for this is that a significant proportion of students do not have the financial and the technical means to participate in online classes (Mukhtar, et al. 2020). In such countries the biggest problem was the lack of personal interaction and socialization (Mahmood, S. 2021).

The difficulty and lack of networking is highlighted by Slimi (2020) in his study in Oman. In addition, there was a lack of student cooperation and inadequate student time management. A survey in Jordan found similar results. Although some students were satisfied with online learning, a larger proportion of them missed face-to-face interaction. Students felt more isolated during online education, Alawamleh (2020). Adedoyin & Soykan, E. (2020) propose a solution to the problems of technological and network connectivity by suggesting that educational institutions should cooperate with telecommunication companies. Companies can subsidise internet subscription costs or provide free browsing for students.

A further solution could be the widespread deployment of 5G to ensure adequate internet connectivity, in which policy makers, service providers and educational institutions should work together (Shah et al, 2021). König and colleagues found that teachers who kept in regular contact with their students and their parents and used effective and modern educational software and platforms were more effective in online education than teachers who did not. (König et al 2020).

Asynchronous methods are of particular importance for students with poor internet connections (Lapitan et al., 2021). The authors note that their method could be applied in the future to school closures due to natural disasters or other cases where taking immediate action is required. Chiu (2020) discusses the motivation of students and how to increase the effectiveness of teaching. Student motivation can clearly be increased by giving students more autonomy from the instructor.

In his 2021 paper, Chiu details the challenges related to online education that, in his opinion, need to be addressed by researchers and educators alike. (1) understanding the motivation process is important (2) preparing students for online learning: autonomy, collaboration, digital skills. (3) taking into account students' psychological needs and providing emotional support and development (4) strengthening technological and social support (5) bridging the gap between theory and practice by educators (6) supporting teacher well-being (7) supporting learning for special needs groups (8) conducting policy comparative studies.

Partly similar results were obtained in a study carried out in the Kingdom of Saudi Arabia (Almusharraf & Khahro, 2020). The trainers and students agreed on the specific use of the online platform, the evaluation system, the possibilities for technical support and the training workshop. Students were the most satisfied with Google Hangouts and least satisfied with Moodle. However, the study points to the need for further research into how practical training

can be delivered effectively in the online space. Furthermore, new innovative teaching techniques and assessment methods need to be developed.

## **2. Methodology**

The aim of the primary research is to find out the views and experiences of students and teachers about online education. Our research questions are: What correlations can be identified between students' and teachers' experiences of online education? Is it possible to classify teachers and students into different clusters based on their opinions? The primary research consists of two parts: in the qualitative research, focus group interviews were conducted (2-2 interviews with teachers and students). During the focus group research, we identified the areas that stakeholders considered important or in need of improvement. Quantitative research was then conducted for both stakeholders. The questionnaires differed only regarding the demographic question, so the results can be compared across stakeholders.

The questionnaire consists of two parts, both open and closed questions (using a 4-point Likert scale): (1) What do respondents consider important for effective online education? (1 open question; 7 closed questions); (2) What changes do respondents consider important for online education? (1 open question; 4 closed questions)

The demographic questions were designed to ensure that the respondents could not be identified at a later stage. The questionnaires were sent to students and teachers in online format at the faculties of economics, law, engineering and teaching at the university. A total of 304 student and 59 faculty responses were received.

## **3. Findings**

After examining the answers of the survey, based on the average of the responses, the respondents consider the factors listed in the questionnaire to be equally important in relation to online education, and think that the development of the areas listed in the questionnaire is uniformly considered necessary. Both faculty members and students gave an average score of around 3.5 on a scale of 4 for the items listed.

The availability of hardware and software tools, ongoing communication between teacher and student, the flexibility of the requirements system, and adherence to a pre-announced schedule are considered by both faculty and students to be important building blocks for effective online education. Each factor received an average above 3 from both groups.

However, a significant difference can be observed between the two stakeholders in terms of the following aspects. Students consider it particularly important (average 3.71) that instructors make the curriculum and materials available to them from the beginning, as opposed to instructors who do not really consider it important (average 2.89). The same

difference can be observed with regard to the communication interface: students seem to be more in demand of teachers sharing the curriculum on a uniform interface (average 3.35), while teachers are less concerned with this (average 2.75).

We can observe a reversed attitude towards resources: students are less interested in the institution providing the resources needed for teachers to hold the lesson (average 2.77), teachers consider this to be a more important factor (average 3.24). Thus, the different preferences of students and faculty members can be observed in these issues.

By creating the correlation matrix, we had a dual goal. On the one hand, the correlation matrix provides information on which columns of the table are related to each other, ie which questions received coherent answers. On the other hand, it also shows how consistent the respondents are.

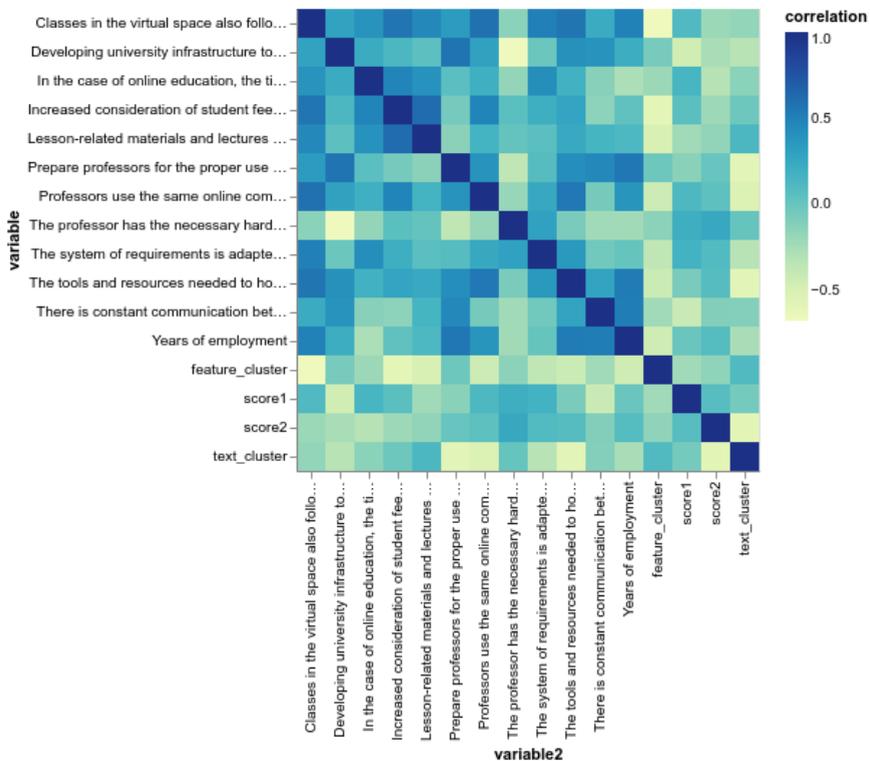


Figure 1. Correlation matrix of teachers' answers

In case of teachers, surprisingly, we found that there was no strong correlation between responses: all values were below 0.5. Instructors are consistent with respect to university infrastructure, the extent to which they want to change the development of university infrastructure, the same they want to change the technical readiness of faculty.

We can also observe a synergy in the fact that whoever considers it important to have the hardware and software to keep the lesson also considers it necessary to develop the university infrastructure. Furthermore, another pattern seems to emerge from the correlation matrix: for teachers, the announced schedule of lessons seems to be the origin, as this statement correlates with most statements.

We consider it a very surprising, but also a telltale phenomenon that we do not find a strong correlation between the answers in the case of students. The highest values are around 3.0 and also revolve around the infrastructure theme.

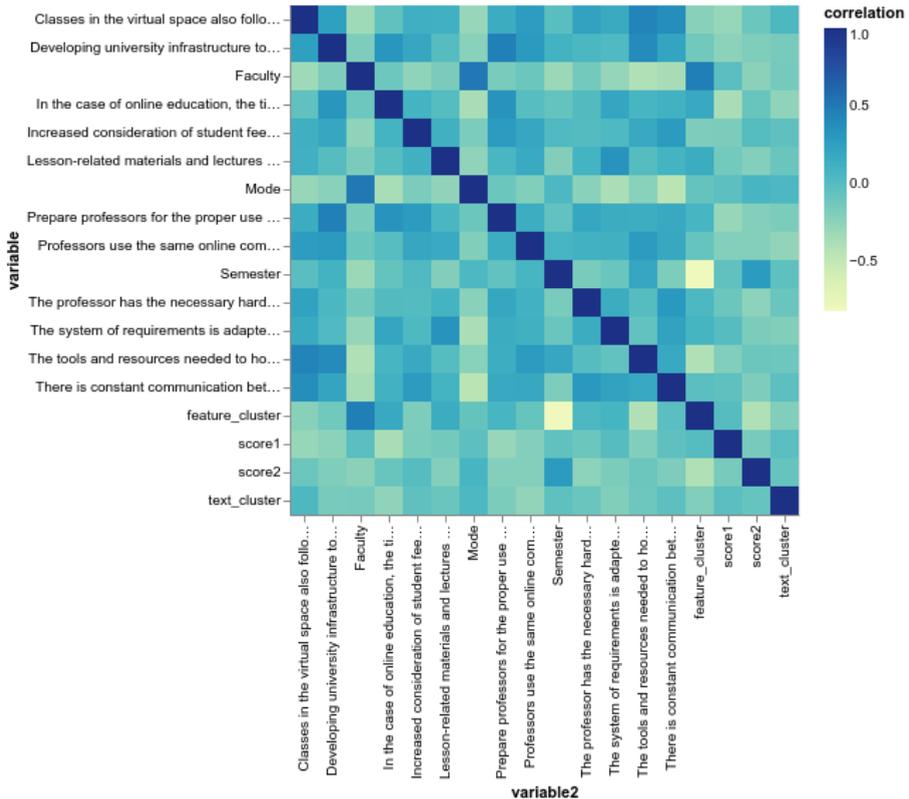


Figure 2. Correlation matrix of students' answers

In the case of clusters, only the textual responses were taken into account when creating the clusters automatically. Respondents were divided into five groups because this seemed to be the most optimal distribution. In this way, clustering was also performed separately for students and teachers. Keywords of each cluster were automatically generated and the first twenty over 1 log likelihood were studied.

In the case of students, based on the two open-ended questions, respondents in the 5 clusters appear to highlight different aspects of online education. Cluster 1 sees the key to effective online education in schedule keeping; Cluster 2 considers the lack of personal presence important; Cluster 3 considers the technical background of online education to be the most important in its answers; Cluster 4 also highlights the technical conditions, but more specifically than the previous one; and Cluster 5 describes importance of health in the description of effective online education, and also draws attention to the technical aspects of online education, but rather to its communication aspect.

We obtained a surprising result when we examined the keywords of the second open question in the five student clusters. It turned out that in the case of clusters 3, 4 and 5, twenty words do not reach the value of 1 log likelihood. We got 9 words for cluster 3, 5 for cluster 4, and only one for cluster 5. Thus, the results are very difficult to compare. In addition, we found that typical themes that would be specific to each cluster did not emerge.

In the case of the teachers, when studying the keywords of the clusters, we found that in the case of the first open question, the aspects considered important by the teachers and students partially overlap, but the teachers associate more nuanced words with some topics. The answers to the first question show that all 5 groups of teachers consider the visual aspect of online education important, as the visual word appears among the keywords in each cluster. 1-4. group also highlights the technical aspect of online education, the word curriculum is included in both clusters 1 and 4.

It is clear from the keywords in the answers to the second question that teachers in all five clusters consider changes to the technical background of online education necessary. This theme appears uniformly in all clusters, and there are quite a few words attached to it. In clusters 2 and 5, the topic of accountability is also available in action and the interactive relationship between people.

#### **4. Conclusion**

The rise of Covid-19 created challenges for higher education, which in response has undergone a major transformation. The aim of this research was to find out students' and teachers' opinions on online education introduced in the first phase of Covid with the help of a survey. Results show that there is a significant difference on several occasions. Students consider particularly important the immediate availability of materials and the usage of a unified system, while teachers consider these less important. In case of both teachers and students, no strong correlation was found between responses, but teachers are consistent with respect to university infrastructure, the extent to which they want to change the development of university infrastructure. We can conclude that the view of the stakeholders are partially the same but the emphasis is not the same from different perspectives. It needs to be examined

in the future whether generational or other reasons are behind it, and more analysis is needed for a deeper understanding of the differences and reasons.

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