

Distance learning in higher education: reflections of students and academic staff

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Abstract

Distance learning is an educational format that involves guided independent study without the physical presence of academic staff and students in the classroom. Due to the COVID-19 pandemic, distance learning has become the predominant method of education in the Czech Republic. A research study was conducted using a questionnaire survey with the aim of collecting data from academic staff and students of Czech colleges and universities in order to determine their perception of distance learning. 84 responses from academic staff and 161 responses from students were subjected to statistical testing. The results showed that although students' motivation to study in distance learning was higher, compared to motivation during face-to-face learning, and although they evaluated the level of cooperation with classmates positively, they perceived their work and approach to study as average to below average. While academic staff rated their work and approach to teaching, cooperation with colleagues and provided study materials as excellent, distance learning was not beneficial for them in terms of acquiring new skills and their work motivation was not proven to be higher. Overall, academic staff expressed higher satisfaction with distance learning than students. Surprisingly, the majority of respondents did not look forward to face-to-face learning.

Keywords: distance learning, higher education, COVID-19, academic staff, students

Introduction

At the end of 2019, the first cases of a mysterious disease of unknown origin were reported in Wuhan, China. Subsequently, it was discovered that the disease was caused by a

coronavirus called SARS-CoV-2 and the disease was named COVID-19 (Trojanek et al., 2020). As a result, the governments of most countries have implemented measures to reduce the risk of infection and act as a preventive measure (Zhang, Liu, 2020). One such measure was the implementation of distance learning in schools, including higher educational institutions. During the first wave of the pandemic in April 2020, schools were closed in most countries around the world, affecting approximately 1.6 billion pupils and students, according to UNESCO statistics (Stringer, Keys, 2021). Although some governments have tried to limit further school closures, as of October 2021, a third of the world's countries had schools that were partially or completely closed, according to the World Bank (Munoz-Najar et al., 2021).

The Czech Republic was no exception. On March 10, 2020, the Ministry of Health issued an emergency measure to prevent the spread of the COVID-19 disease. This measure prohibited the personal presence of pupils and students for the purpose of education and study at Czech primary, secondary, higher vocational and university schools and educational facilities. Czech education thus faced several challenges of so-called distance learning, i.e. education based on independent study, managed by the institution, without personal contact between students and academic staff (Průcha, Walterová & Mareš, 2003). During the COVID-19 pandemic, Czech schools operated in a distance learning mode due to the pandemic for several tens to hundreds of distance days remotely. For universities, specifically for the academic years 2019/2020 and 2020/2021, it was a total of 135 days.

The aim of the presented research was to reveal the perception of distance learning in higher education by academic staff and students in this period and to compare the opinions of the affected target groups. The following research questions were asked:

- RQ1: Whether and how the evaluation of one's own work and cooperation with colleagues (classmates) during distance learning differ?
- RQ2: Whether and how the assessment of the quality and benefit of lectures and exercises by academic staff and students differs?
- RQ3: Which aspects of distance learning were most and least satisfying for the respondents?

Theoretical basis

The term "distance learning" has no agreed definition and varies according to different authors. For example, Černý (2015) defines this term as "a form of education in which students are in indirect contact with academic staff, while this education is largely self-directed and the main responsibility for the process and results of education is borne by the student himself." Průcha, Walterová & Mareš (2003) define distance learning as "a multimedia form of controlled education in which academic staff are separated from the students during the education." In general, it can be said that distance learning is a multimedia form of face-to-face education, where the main principle is self-study, the

student is not in direct contact with an academic staff, he works in his environment and the academic staff fulfills the role of a kind of controller and evaluator.

Until 2020, Czech universities did not have much experience with distance and mixed education. University academic staff and students were thus faced with a number of new tasks in managing the crisis situation in education (Dopita et al., 2023). In their study, Dvořáková, Kulachinskaya (2021) demonstrated that universities were able to respond quickly to the transition to distance learning. For academic staff, the change primarily meant a swift transition and subsequent preparation for work in MS Teams. Due to the shift to online education, differences in students' technical backgrounds and their own home environments for distance learning became apparent. Similar problems arose for female academic workers who had to balance work with childcare, compulsory schooling, and their own schedules at the university.

The concept of working and studying from home during COVID-19 has yielded several benefits for individuals. For instance, academic staff demonstrated their ability to adapt, be flexible, and engage in effective planning (Dietrich et al., 2020; Marek, Chew & Wu, 2021). Students, on the other hand, were able to study from home without the limitations of commuting and could utilize their free time productively (Purwanto, 2020).

Nevertheless, studies have identified certain disadvantages. Distance learning is predominantly conducted at home, resulting in a diminished social connection between academic staff and students (Průcha, Míka, 2000). This lack of interaction can lead to feelings of isolation, loneliness, sleep disturbances, and a depletion of energy, all of which can significantly impact an individual's mental health (Casacchia et al., 2021). Maintaining focus during distance learning is challenging as students find themselves in a home environment that may not foster concentration (Kruszewska, Nazaruk & Szewczyk, 2022). Additionally, the use of computers and screens for educational purposes in distance learning can become tiring after prolonged hours. In an environment detached from educational activities, finding motivation to work becomes more challenging. Studies have linked distance learning to decreases in student mastery orientation, engagement, and enjoyment (Fortus, Lin & Passentin, 2022). Furthermore, issues such as low self-discipline and procrastination have been observed (Pelikan et al., 2021). Pedagogues have often been noted to possess a low level of competence in online distance learning, coupled with a lack of technical support (Simonová, Faltýnková & Kostolanyova, 2021). According to research by the server clovekvistni.cz, technical complications ranked as the third most serious problem in distance learning (Clovek v tísní, 2022).

Several authors have shown that while distance learning worked as a temporary alternative due to COVID-19, it could not substitute face-to-face education. Therefore, so-called blended learning is proposed as an effective combination of these two forms (Almahasees, Mohsen & Amin, 2021; Hrastinski, 2019; Ashraf et al., 2021).

The research is grounded in the Technology Acceptance Model, which centers around new technologies in terms of user acceptance and models the utilization of the given technology by users. The latest iteration of the model is referred to as Technology

Acceptance Model 3 (Venkatesh, Davis, 2000). The model operates under the assumption that the user's perceived ease of use of the given technology is connected to their individual belief about their own work efficiency. This model enables the examination of students' acceptance of distance learning and the exploration of how students react to this method of education. For instance, it helps identify their reasons for accepting or rejecting distance learning.

Methods

In accordance with the topic and objective of the research, a quantitative paradigm was selected for our study. To accomplish this, a questionnaire survey was considered the most effective method of data collection. The questionnaire itself was designed using a self-constructed technique, and the target population consisted of academic staff and students of Czech universities. In order to ensure the accuracy, clarity, and appropriateness of the questions within the questionnaire, a pilot study was conducted with a selected group of students and academic staff of the University of Defense. The questionnaire was subsequently distributed in printed and electronic form, and the primary data collection was carried out between June to July 2021. Participants were informed about the aim and purpose of the research, as well as the methodology of data analysis, while their anonymity was maintained throughout the process.

The sample size for our study was determined through purposive selection. We approached 400 potential research participants, comprising 200 academic staff and 200 students, and ultimately received 245 responses. Among these participants, 84 were academic staff, and the remaining 161 were students from seven different institutions: the University of Defense, Ambis University, the Technical University in Brno, the Czech Technical University in Prague, Masaryk University, Mendel University, and Charles University.

The research sample consisted of academic staff, comprising 56% men and 44% women. Among the respondents, 6% were under 30 years old, 29% were aged 30-39, 24% were 40-49, 20% were 50-59, 15% were 60-69, and 6% were 70 or older. In terms of education, 30% of respondents held the title of engineer or master's degree, 52% held a doctorate, 12% were associate professors, and 6% were professors. Regarding the length of experience, 42% of respondents had up to 10 years of experience, 29% had up to 20 years, 20% had up to 30 years, and 9% had more than 30 years. The majority of respondents specialized in economics and management subjects, including safety management, risk management, human resource management, financial management, accounting, economics, public administration, business economics, and logistics. The questionnaire's intended questions for academic staff are listed in Table 1.

Tab. 1: Questions of the first battery of closed questions – Academic Staff

Academic staff
1.1 Course of distance learning in general (how lectures and exercises took place)
1.2 Own work and approach to teaching and students
1.3 Students' work and their approach to studying (preparation for teaching, completing tasks, communication)
1.4 Cooperation with colleagues during the preparation and course of distance learning
1.5 Course of distance learning in general (how lectures and exercises took place)

Source: Results for presented own research

The research sample of students consisted of 63% men and 37% women. Among the respondents, 78% were between the ages of 19 and 22, 21% were between 23 and 26, and only two respondents were 30 or older. Except for two students in the combined form of study, all others were full-time students across all years of university studies. The questions for students are subsequently listed in Table 2.

Tab. 2: Questions of the first battery of closed questions – Students

Students
1.1 Course of distance learning in general (how lectures and exercises took place)
1.2 Own work and approach to study
1.3. Academic staff' work and their approach to teaching (understandability of interpretation, willingness, communication)
1.4 Quality and availability of materials provided (presentations, scripts, etc.)Cooperation with classmates when solving team tasks
1.5. Quality and availability of materials provided (presentations, scripts, etc.)

Source: Results for presented own research

The questionnaire contained two batteries of closed-ended questions with predefined answers on a 6-point ordinal Likert scale, as well as three open-ended questions related to the research objective. In the first battery of closed-ended questions, respondents were asked to use a numerical scale ranging from 1 to 5 (where 1 indicated the best and 5 indicated the worst, with an additional option for "I cannot rate") to evaluate various aspects of their distance learning experience based on their personal experience.

In the second battery of closed-ended questions, respondents were asked to use a verbal scale (ranging from 'definitely yes' to 'definitely not,' with options for 'neither yes nor no' and 'not being able to evaluate'). They were required to answer the following questions, which are divided according to their intended use for academic staff (Table 3) and students (Table 4).

Tab. 3: Questions of the second battery of closed questions - Academic staff

Academic Staff
2.1 Did the distance learning lectures suit you more than face-to-face teaching?
2.2 Did the training in the form of distance learning suit you more than in the form of face-to-face education?
2.3 Did you spend more time preparing for distance learning than preparing face-to-face teaching?
2.4 Were you more lenient in assessing students during distance learning compared to assessment during face-to-face education?
2.5 Was your motivation to implement the teaching and all the work associated with it during distance learning higher compared to the motivation during face-to-face teaching?
2.6 Did distance learning help you in your personal development? (E.g. development of new abilities, skills)
2.7 Would it suit you to continue in the distance form of education in the future?
2.8 Were you looking forward to returning to full-time education?

Source: Results for the presented own research

Tab. 4: Questions of the second battery of closed questions - Students

Students
2.1 Did lectures in the form of distance learning suit you more than in the form of face-to-face learning?
2.2 Did the training in the form of distance learning suit you more than in the form of face-to-face learning?
2.3 Did you spend more time studying during distance learning than during face-to-face learning?
2.4 Were the academic staff more lenient when evaluating your work during distance learning compared to the evaluation during face-to-face learning?
2.5 Was your motivation to study during distance learning higher compared to your motivation during face-to-face learning?
2.6 Did distance learning help you in personal development? (E.g. development of new abilities, skills)
2.7 Would it suit you to continue in the distance form of education in the future?
2.8 Were you looking forward to returning to face-to-face learning?

Source: Results for the presented own research

Three open questions, used to supplement information and express respondents' opinions, had the following wording:

- What aspect of distance learning suited you the most?
- Which aspect of distance learning suited you the least?
- Do you consider it important to mention any other facts in connection with the conducted research?

To evaluate the quantitative data, a two-sample t-test was used to compare the mean values of the responses of students and academic staff. This test was supplemented with an F-test to determine the correct variant of the t-test. Next, a Chi-square (χ^2) goodness-of-fit test was used to determine whether the distribution of student responses was statistically different from that of academic staff.

The analysis of answers to open questions according to Strauss, Corbin (1999) was used to evaluate the qualitative data. It is not possible to present all the obtained data to the readers, so it was necessary to reduce them. Reducing and organizing the answers (data) then represents selection and interpretation. The results of this analysis were used to clarify and illustrate the quantitative research.

Results and discussion

Table 5 presents the percentage of responses from academic staff to the first battery of closed questions, evaluating aspects of distance learning on a scale of 1-5, and also provides the results of statistical tests.

Tab.5: Results of the first battery of closed questions - Academic staff

Questions	1	2	3	4	5	test	p-value
1.1	20 %	58 %	20 %	2 %	0 %	t-test	0,102
1.2	39 %	51 %	6 %	1 %	3 %	t-test	0,000***
1.3	9 %	30 %	38 %	22 %	1 %	t-test	0,000***
1.4	56 %	26 %	9 %	5 %	4 %	t-test	0,097*
1.5	55 %	36 %	4 %	1 %	4 %	t-test	0,000***

* Statistically significant difference ($p < 0.1$)

** Statistically significant difference ($p < 0.05$)

*** Statistically significant difference ($p < 0.01$)

Source: Results for the presented own research

Table 6 presents the percentage of responses from students to the first battery of closed question, evaluating aspects of distance learning on the same scale of 1-5, and also provides the results of statistical tests

Tab.6: Results of the first battery of closed questions - Students

Questions	1	2	3	4	5	test	p-value
1.1	19 %	46 %	28 %	6 %	1 %	χ^2 -test	0,178
1.2	10 %	29 %	34 %	22 %	5 %	χ^2 -test	0,000***
1.3	31 %	38 %	25 %	2 %	4 %	χ^2 -test	0,000***
1.4	42 %	29 %	19 %	7 %	3 %	χ^2 -test	0,117
1.5	28 %	44 %	21 %	4 %	3 %	χ^2 -test	0,000***

* Statistically significant difference ($p < 0.1$)

** Statistically significant difference ($p < 0.05$)

*** Statistically significant difference ($p < 0.01$)

Source: Results for the presented own research

Comparing the results of statistical tests for the responses of academic staff and students allows us to demonstrate differences in individual answers. The evaluation of the data in Tables 5 and 6 was used to address RQ1. From a general perspective, the course of

distance learning (question 1.1), encompassing the overall method of conducting lectures and exercises, received mostly positive evaluations from respondents. There is no statistically significant difference in the perception of distance learning between academic staff and students. However, a significant difference is observed in the reflection of academic staff and students on their own work (question 1.2) and the work of their 'counterpart' (question 1.3).

While academic staff generally assess their work and teaching approach positively, students often rate their own work and study approach as average or below average. Conversely, students generally evaluate the work of academic staff and their teaching approach, considering aspects such as clarity of interpretation, willingness, and communication, quite positively. In contrast, academic staff more frequently rate students' work and their approach to studying, including factors like level of preparation for teaching, completion of tasks, and communication, as average. Notably, the results of these two questions, exploring the same factor from different perspectives, are entirely consistent. Thus, it can be concluded that the work of academic staff is generally evaluated more positively than that of students.

Both groups also assessed the level of cooperation with their peers (question 1.4). For academic staff, this involved collaboration with colleagues in preparing distance learning, while for students, it entailed teamwork with classmates on assignments. Both academic staff and students perceived the level of this cooperation positively.

Although both groups generally provided positive evaluations for the quality and accessibility of study materials, such as PowerPoint presentations and scripts (question 1.5), a statistically significant difference is observed in the distribution of answers across the first three levels of the scale. More academic staff leaned towards an excellent rating of the provided materials, while students tended towards an average rating.

Table 7 presents the percentage of answers from academic staff to the second battery of closed-ended questions, assessing answers on a word scale, and displays the results of the performed statistical tests.

Tab. 7: Results of the second battery of closed questions – Academic staff

Questions	Definitely yes	Rather yes	Neither yes nor no	Rather not	Definitely not	test	p-value
2.1	15 %	31 %	21 %	22 %	11 %	t-test	0,005***
2.2	41 %	29 %	12 %	17 %	1 %	t-test	0,011**
2.3	3 %	12 %	12 %	42 %	31%	t-test	0,000***
2.4	17 %	25 %	16 %	39 %	3 %	t-test	0,082*
2.5	9 %	24 %	37 %	21%	9 %	t-test	0,000***
2.6	1 %	11 %	11 %	44 %	33 %	t-test	0,000***
2.7	16 %	24 %	20 %	26 %	14%	t-test	0,645
2.8	0 %	1 %	27 %	35 %	37 %	t-test	0,000***

* Statistically significant difference ($p < 0.1$)

** Statistically significant difference ($p < 0.05$);

*** Statistically significant difference ($p < 0.01$)

Source: Results for presented own research

Table 8 presents the percentage of answers of students to the second battery of closed questions.

Tab. 8: Results of the second battery of closed questions – Students

Questions	Definitely yes	Rather yes	Neither yes nor no	Rather not	Definitely not	test	p-value
2.1	16 %	17 %	12 %	20 %	35 %	χ^2 -test	0,005***
2.2	26 %	30 %	13 %	24 %	7 %	χ^2 -test	0,098*
2.3	30 %	36 %	18 %	11 %	5 %	χ^2 -test	0,000***
2.4	6 %	25 %	23%	40 %	6 %	χ^2 -test	0,085*
2.5	54 %	27 %	20 %	13 %	5 %	χ^2 -test	0,000***
2.6	12 %	26 %	15 %	32 %	15 %	χ^2 -test	0,000***
2.7	20 %	21 %	12 %	24 %	23 %	χ^2 -test	0,189
2.8	7 %	22 %	19 %	28 %	24 %	χ^2 -test	0,000***

* Statistically significant difference ($p < 0.1$)

** Statistically significant difference ($p < 0.05$);

*** Statistically significant difference ($p < 0.01$)

Source: Results for the presented own research

Comparing the results of statistical tests of academic staff and students' responses demonstrates the differences between the two groups. The evaluation of the data in Tables 7 and 8 was used to address RQ2.

While students expressed greater satisfaction with face-to-face lectures, academic staff, on the contrary, were more satisfied with distance lectures (question 2.1). Training in the form of distance learning, however, suited both researched groups more than training in the form of face-to-face teaching (question 2.2). Nonetheless, a slight difference can be observed between the groups. The proportion of positive and negative answers was 70% to 18% for academic staff and 56% to 31% for students. Therefore, it can be concluded that academic staff were significantly more satisfied with distance learning than students.

Another question (2.3) analyzed the time spent on distance learning. Here, a significant difference in the responses of the two groups is found. While almost three-quarters of academic staff responses do not confirm that they spend more time preparing for distance learning than for full-time studies, 66% of student responses state that they spend more time studying during distance learning than during face-to-face teaching.

Regarding the evaluation of students and their work by academic staff during distance learning (question 2.4), both groups more or less agree and declare that it was not more moderate compared to face-to-face teaching.

However, opinions diverge in the question concerning respondents' own motivation (question 2.5). While the positive and negative responses of academic staff are almost balanced, positive responses significantly predominate among students. Thus, the motivation of students to study during distance learning was significantly higher compared to the motivation during face-to-face education. On the other hand, expressing

an unequivocal opinion on the motivation of academic staff to implement distance learning compared to face-to-face teaching is not possible.

Although both groups perceive the aspect of personal development similarly (question 2.6), with the majority of academic staff and students stating that distance learning did not help them in the development of new abilities and skills, a closer examination of the answers reveals a significantly higher percentage of negative responses among academic staff than among students. Distance learning, therefore, benefited students more in this respect.

The responses to the question of whether it would be convenient for the respondents to continue in the distance form of education (question 2.7) were almost equal for both investigated groups. However, in the answers to the question of whether the respondents looked forward to returning to full-time education, both groups mostly took an unequivocal position - rather no and definitely not. Nevertheless, a difference between academic staff and students is noticeable, with a significantly higher percentage of negative answers observed among academic staff.

Table 9 presents the results of the correlation coefficient, indicating the mutual dependence between the answers of academic staff to the closed questions of the questionnaire.

Tab. 9: Correlation matrix - Academic staff

	1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	2.4	2.5	2.6	2.7
1.2	0,517***											
1.3	0,439***	0,209**										
1.4	0,54***	0,496***	0,19*									
1.5	0,475***	0,601***	0,021	0,527***								
2.1	-0,387***	-0,011	-0,09	-0,134	-0,038							
2.2	-0,366***	-0,062	-0,198**	-0,14	-0,112	0,66***						
2.3	0,281***	0,203**	0,302***	0,267**	0,21**	-0,255**	-0,381***					
2.4	0,156*	0,008	0,193*	0,146	0,115	-0,126	-0,366***	0,659***				
2.5	0,25**	0,189*	0,168*	-0,014	0,056	-0,046	-0,137	-0,008	-0,054			
2.6	-0,203**	-0,066	0,053	-0,002	-0,063	0,385***	0,221**	0,048	0,252**	-0,05		
2.7	-0,186*	0,051	-0,229**	0,003	-0,042	0,235**	0,12	-0,002	-0,027	0,014	0,507***	
2.8	-0,436***	-0,082	-0,216**	-0,221**	-0,082	0,822***	0,623***	-0,369***	-0,263**	-0,098	0,378***	0,222**

Source: Results for the presented own research

The strongest positive correlations are observed between questions 1.2 and 1.5, 2.1 and 2.2, 2.1 and 2.7, and 2.2 and 2.7. In other words, academic staff who rated their own work positively also rated the quality and availability of the materials they provided to students positively. If they expressed satisfaction with distance lectures, they were mostly satisfied with distance exercises, suggesting a preference for continuing distance learning. The strongest negative correlations are found between questions 2.1 and 2.8, 2.2 and 2.8, and 2.7 and 2.8. This indicates that the more satisfied academic staff were with distance lectures and exercises, and the more they would be content with the continuation of distance learning, the less they looked forward to returning to face-to-face education.

Table 10 presents the results of the correlation coefficient, illustrating the mutual dependence between students' answers to the closed questions in the questionnaire.

Tab. 10: Correlation matrix - students

	1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	2.4	2.5	2.6	2.7
1.2	0,306***											
1.3	0,505***	0,283***										
1.4	0,433***	0,125*	0,332***									
1.5	0,347***	0,159**	0,503***	0,305***								
2.1	-0,271***	-0,148**	-0,099	-0,169**	-0,051							
2.2	-0,199***	-0,158**	-0,054	-0,181**	0,067	0,559***						
2.3	0,189***	0,094	0,063	-0,007	-0,001	-0,367***	-0,263***					
2.4	-0,001	-0,324***	0,16**	0,12*	0,068	0,176**	0,181**	-0,036				
2.5	0,148**	0,076	-0,14**	-0,022	-0,068	-0,237***	-0,118*	-0,045	-0,039			
2.6	-0,19***	-0,261***	0,004	-0,09	0,112*	0,488***	0,464***	-0,354***	0,546***	-0,02		
2.7	-0,204***	-0,278***	-0,042	-0,018	0,001	0,358***	0,31***	-0,225***	0,196***	-0,052	0,432***	
2.8	-0,215***	-0,099	-0,122*	-0,108*	-0,083	0,717***	0,571***	-0,458***	0,122*	-0,142**	0,459***	0,395***

Source: Results for the presented own research

The strongest positive correlations are evident between questions 2.1 and 2.7. This means that the more satisfied the students were with the distance learning lectures, the more satisfied they would be with continuing the distance learning. Similar to academic staff, the strongest negative correlations are evident between questions 2.1 and 2.8 and 2.7 and 2.8. This means that the less satisfied students were with distance learning lectures and the less satisfied they were with continuing distance learning, the more they looked forward to returning to face-to-face education.

The qualitative part of the questionnaire, consisting of answers to three open questions, was utilized to address RQ3. Both academic staff and students frequently mentioned time flexibility and the elimination of the need to commute as the most significant benefits associated with the implementation of distance learning (*"elimination of time loss associated with commuting", "I used the time saved to prepare new publications" "saving time, I didn't have to move to lectures", "I didn't have to run between classrooms", etc.*). Other commonly mentioned aspects that satisfied both research groups included the ability to record lectures (*"making lectures available to students", "the ability to start the lecture as a podcast at any time", "the ability to download lectures for better preparation for exams", etc.*) and the peace of mind during classes (*"it's easier to understand what someone is saying than in a classroom - less strain on the vocal cords of academic staff", "possibility to really concentrate without disturbing classmates", "better concentration than in a hall full of people", etc.*).

In some students' responses, satisfaction with the non-contact presentation of assigned tasks was observed (*"introverts are satisfied when the whole class can't see them during the presentation", "our lectures were from the comfort of home, so I was less nervous", "less stressful situations during a presentation in front of the class", etc.*). However, negative phenomena resulting from the absence of control of active presence in lectures were also noted (*"the possibility to do what I want during the lecture", "sleep during the lecture", "during the lecture I could, for example, exercise, clean, cook", etc.*).

The least satisfactory aspect of distance learning for academic staff was clearly the absence of direct contact with students and the associated complications (*"talking into a black screen", "communication barrier and student inactivity", "listeners almost have to be persuaded to speak", "low student response, lack of interest in turning on the cameras", "I missed the immediate reactions of the students - facial expressions, gestures - according to which the academic staff can recognize whether the topic is interesting, boring, etc., and can adapt the teaching operatively", "a low possibility of monitoring the pupils' involvement and their more difficult motivation to maintaining attention", etc.*). Shortcomings of a technical nature were also frequently mentioned (*"unreliability of the connection or the possibility of making excuses for it", "dependence on computer technology, the need to connect to the Internet", "system outages, unavailability", "fear that the electric current or the optical cable of the connection will fail", "I have to be able to deal with everything, even if I'm not an IT specialist"...*).

Among students, the most frequently mentioned obstacles were limited social contact and difficulties in maintaining attention (*"insufficient contact with academic staff, fellow students and the school", "more difficult communication with fellow students and academic staff, exercises were not so understandable" "it is difficult to maintain attention when we only look at the screen", "low level of motivation, inability to concentrate, many distractions - social networks, etc.", "I was not forced to concentrate and learn", "no activity control", "insufficient verification of actual knowledge, all just they googled it", etc.*).

At the end of the questionnaire, both investigated groups had the opportunity to mention any other facts related to the research and express their proposals for further possible use of distance learning:

- *"The distance model has the potential to be used, for example, for consultations and oral exams, generally when academic staff only interact with one student."*
- *"Certainly part of the teaching could be done online - for example, an introductory lesson or some presentations of student work in smaller groups."*
- *"In case of student illness, distance learning is a possible alternative."*
- *"In my opinion, combined education is appropriate in a university environment, so a combination of distance and face-to-face education."*
- *"The partial use of distance elements even during face-to-face teaching seems appropriate."*
- *"It is desirable to create hybrid learning materials, usable for both face-to-face and distance learning."*
- *"I would consider a certain combination of face-to-face and distance learning of selected subjects to be ideal for lectures, that is, where possible."*
- *"In the future, it would be advisable to combine distance learning, for example, with lectures and then personal meetings as part of seminars."*
- *"I would introduce distance lectures and face-to-face exercises and seminars, this system suits me."*
- *"I don't see a problem with holding large lectures (with 100 or more people) online, but when it comes to smaller groups, it's more of a negative."*

- *"Distance learning is a nice add-on/bonus that can work for certain non-technical subjects; however, in terms of quality, full-time education significantly exceeds distance learning."*
- *"In my opinion, it is more realistic to conduct lectures online, but the lecturer needs to prepare more for the lecture and use interactive elements to better engage the students in the topic, in my opinion, the quality of the exercises cannot be maintained. , although we used all available interactive elements."*

Conclusion

In general, the implementation of distance learning, encompassing both lectures and exercises, received predominantly positive evaluations from both academic staff and students. However, there were notable differences in satisfaction levels. Academic staff expressed greater satisfaction with the distance format of lectures compared to face-to-face sessions, while students showed a preference for the face-to-face format of lectures. Interestingly, both groups found the distance format of exercises more favorable than the face-to-face counterpart.

Although students exhibited higher motivation for studying during distance learning and a greater percentage acknowledged the development of new abilities and skills, along with positive evaluations of cooperation with classmates, their overall perception of their work and approach to studying was average to below average. This may be attributed to the increased time commitment required for distance learning and the fact that the evaluation from academic staff remained consistently positive.

Academic staff, rating their work, teaching approach, cooperation with colleagues, and provided study materials as excellent, did not report spending more time preparing lectures during distance learning. However, there was no apparent benefit in terms of acquiring new skills, and work motivation did not show a significant increase.

The respondents' comfort with continuing their studies at a distance remains unclear, but it is noteworthy that most respondents did not express enthusiasm for returning to face-to-face education. Interestingly, academic staff showed slightly less excitement than students.

These sociological investigation findings are valid for the given sample and warrant further verification, particularly through quantitative and qualitative approaches. As universities and colleges increasingly introduce study programs in the form of distance learning, the experiences shared by those with prior distance learning experience can assist program coordinators in optimizing the educational process.

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