Distance Learning in Preparing Primary School Teachers During a Pandemic

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Abstract - **The coronavirus pandemic has affected all areas of education, including teacher training. Therefore, teacher training faculties had to deal with this unexpected situation very quickly. This affected both students and teachers. The research survey includes two institutions preparing future teachers of primary schools – one in the Czech Republic and one in Vietnam. The research group consists of pre-service primary teachers and academic staff who prepares them. The result shows that the shortcomings or disadvantages of online teaching were similarly evaluated by students in the items such as poor personal contact with the teacher and low physical activity. Notable and very different was the evaluation of the item change of methods and forms of teaching. From the teachers' perspective, a notable fact is that the disadvantages of online teaching were perceived similarly by both cultures. On the other hand, the effectiveness of online teaching was perceived with a slight difference of opinion.**

Keywords – **Distance learning, teacher training, elementary school, digital competencies, COVID-19.**

1. Introduction

The coronavirus pandemic has profoundly impacted various sectors of education, including teacher preparation programs. Consequently, faculties responsible for teacher training have been compelled to promptly address the challenges associated with adapting undergraduate training methodologies to cater to the needs of aspiring educators. As Cruz, Menezes, and Coelho [1] pointed out, with the COVID-19 pandemic, teacher education has raised broad discussion in academia, as student learning takes on new contours in the face of the remote teaching alternative, which can have a substantial impact on the personal and professional dimensions of the subject in formation. The need to create learning environments for student teachers doing their teacher education preparation implied decisions, choices, and adaptations in order to not only meet the expectations of students but also the requirements of teacher education as well as the conditions in which both universities and schools had to operate [2]. Of course, this affects students as well as their teachers. Results show that teachers who have had previous online teaching experience have a greater need to continue their education in this area. Increased competence is subsequently also reflected in their confidence in the effectiveness of distance education [3]. This method can be understood as an important element in implementing distance learning, as distrust in this education form can manifest in the education process itself [4]. Research carried out by Alexander et al. [5] also shows how important teachers' competences are for distance learning and how they influence the level of implementation in the educational process.

As cited by Mutton [6], the majority of the papers indicate that the transition from in-person instruction to online delivery occurred during the second week of March 2020 for universities and schools worldwide.

Several articles, including those examining the situations in Trinidad and Tobago [7], California [8], and Argentina [9], offer a captivating account of the events unfolding in the subsequent weeks and months. These articles chronicle the closure of educational institutions, the transition to online instruction, and the swift acquisition of technological expertise by academic professionals. Therefore, in the period between spring 2020 and summer 2021, the distance method of education completely transformed the form of standard direct teaching into a distance form of education. In the sense of the text of Ellis, Stedman and Mao [10], however, the question is whether this transformation can be referred to as an innovation or as a forced step forward. It turns out that even such a critical situation can in the end be perceived as an innovative step in education.

We concur with this perspective, as articulated by Moore and Kearsley [11], which views teaching and structured learning as processes where instruction typically happens separately from learning, necessitating communication through technologies and specific institutional arrangements. However, many students appear to prefer face-to-face instruction over online education, with one important factor being the fact that they do not see distance learning as a full-fledged, effective replacement for standard learning [11], [12]. This is confirmed by other studies, which mention the negative impact of distance learning on students, i.e., on their study habits and study activities [13]. In the context of the finding that almost a quarter of students experienced increased anxiety levels within the study during a pandemic [14], this is a serious combination that can have an impact on the learning outcomes of teaching students.

In the Czech environment, the Ministry of Education, Youth and Sports responded to the new call, which established rules for distance education as an amendment to the Act by Decree No. 349/2020 Coll., whereby it defined online teaching as "a distance learning method via the Internet and is supported by a variety of digital technologies and software tools", distinguishing between synchronous and asynchronous teaching [15]. Similar responses can also be observed in other nations. For instance, in Russia, the Decree of the Ministry of Science and Higher Education of the Russian Federation (25 March 2020) recommended that all universities in the country transition to distance learning [16]. Likewise, in England, during March 2020, all universities shifted to online instruction, while schools followed suit, remaining open only for a limited number of children considered 'vulnerable' or with parents classified as key workers.

This sudden shift resulted in a 'practicum vacuum' for initial teacher education students [17]. However, within this context, it becomes evident, as highlighted by the British Council [18], that many educators express a need for clearer guidelines from their Ministries of Education, and teacher educators require support in adapting to assist teachers who are conducting remote instruction.

2. Method

The study employs a mixed-methods research design [19], recognizing its significance in capturing phenomena that are inherently challenging to comprehend through a singular approach. This design facilitates the attainment of data validity essential for meaningful findings. In the qualitative phase, our framework is informed by concepts delineated by scholars such as Denzin and Lincoln [20] or Silverman [21], while the quantitative aspect draws upon Gorard's work [22]. Nonetheless, this article focuses exclusively on presenting the results from the quantitative phase, retaining only essential insights from the qualitative phase to elucidate the complexity of the research.

2.1. Research Goals and Research Questions

The research goals are based on the ideological basis of the implemented research survey and it is possible to set three main research goals:

1) To find out how teacher students perceive undergraduate preparation during a pandemic.
2) To find out how academic staff perceive undergraduate training during a pandemic.
3) To compare findings between Dong Thap University (Vietnam) and University of Hradec Králové (Czech Republic).

In order to meet the above-mentioned goals, we have set partial research questions that help concretise our intention.

- What is the attitude of teachers and students in relation to online teaching?
- What are the pros and cons of online education from the perspective of students and teachers?
- What are the possibilities of using online education in times outside the pandemic situation, i.e., within the normal way of education, from the viewpoint of students and teachers?

2.2. Research Sample

The research survey includes two institutions preparing future teachers at the first stage of primary schools. This is the University of Hradec Králové Faculty of Education in the Czech Republic (hereinafter UHK), which has long-term been devoting itself to undergraduate teacher training within the Institute of Primary, Pre-primary and Special Education. This department currently has 17 full-time academic staff and a total of over 700 students, of which more than 400 are studying the field of Primary School Teacher Training in full-time and part-time forms of study. The second institution is Dong Thap University in Vietnam, which prepares 474 students at the Faculty of Primary and Nursery Education (DThU), and their education is provided by 46 academic staff.

The research group consists of teaching students who specialise in primary education. The second group are academic staff who participate in preparing the above group of students. From the viewpoint of research-set selection, this is an improbability method, which is a purposive sample for both groups of respondents. This approach was chosen especially with regard to the research goal, which among other things, is a comparison of the approach at both workplaces, which participated in implementing the research survey.

In the case of UHK, for the quantitative survey, all 2nd, 3rd, and 4th year students, who studied their field online in the academic year 2020/2021 were contacted, thanks to the lockdown during the COVID-19 pandemic. The addressing took place through the internal university study system. The return was 259, which is 89 %. In the case of UHK, not only teachers at the Institute of Primary, Pre-primary and Special Education were contacted by academics, but also teachers from the participating departments who participate in preparing teacher students. For the quantitative phase, all teachers were contacted -internal as well as external. Of the total number of 63 respondents, the return was 33, i.e., 52 %.

In the case of DThU, for the quantitative survey, all 2nd, 3rd, and 4th year students who studied online their field in the academic year 2020/2021 were contacted, thanks to the lockdown during the COVID-19 pandemic. The addressing took place through the internal university study system. The return was 395, which is 83,33 %. In DThU's case, not only teachers at the Faculty of Primary and Nursery Education were approached by academics, but also teachers from the participating departments who participate in preparing teacher students.

For the quantitative phase, all teachers were contacted - internal as well as external. Of the total number of 46 respondents, the return was 35, i.e., 76.08%.

2.3. Research Methods

Two methods were chosen in the context of research design and the ideological intention of the research, whereby its use corresponds to the set goals and helps to find answers to the formulated research questions.

The first phase is an interview, the second phase is a questionnaire survey. This sequence was chosen with regard to standard methodological procedures, where the interviews provided greater insight into the issue and in the subsequent phase of the quantitative questionnaire survey it was possible to formulate relevant questions that corresponded to real conditions [23].

The questioning within the qualitative phase was designed as a semi-structured interview in order to understand respondent attitudes and thought processes. Focus groups were chosen for students and individual interviews for academic staff. The validity of the interviews was ensured by an independent assessment of their content from the viewpoint of various experts involved in the research. For example, Silverman [24] speaks in this sense in terms of validation techniques. The interviews were recorded electronically via Dictaphone.

Two types of questionnaires were developed within the quantitative phase. One for teaching students, the other for academics. The student questionnaire contained a total of 41 questions closed, open, scaling, and test. The questionnaire for academic staff contained a total of 41 questions closed, open, scaling, and test. The validity and reliability of both questionnaires were determined. Within the preliminary research, the content validity of both tools was ensured. In this phase, a total of 15 students and 8 teachers at UHK took part in the preliminary research, as well as 22 students and 4 teachers at DThU. To provide the research tool with accuracy, the reliability of both tools was also calculated using Cronbach's alpha [25]. In the case of student questionnaires, the value is 0,68, in the case of teacher questionnaire, it corresponds to 0,76. Questionnaires were administered electronically to all groups through an internal study system.

2.4. Data Analysis and Interpretation

Standard methodological procedures were used for the analysis and interpretation of the obtained data.

In the first research survey phase based on qualitative interviews, the data from the electronic form were rewritten and subsequently analysed. In principle, data were processed in accordance with the procedures of grounded theory [26]. An open coding technique followed by thematic coding was chosen for content processing [23]. The reason is the fact that this procedure is especially suitable for cases where the aim is to describe views of a certain phenomenon in the context of a social group, such as teachers or student teachers. The findings were then categorised and the relationships between the categories were affected, making it possible to gain an understanding of the information obtained.

Quantitative data were also analysed by standard statistical procedures. NCSS statistical software was used for data processing and specifically the t-test and nonparametric Mann-Whitney test.

2.5. Limits of the Research

Like any research survey, it is possible to identify the limits that affect the findings final interpretation. The first of these limits is research-set selection. We are aware that deliberate selection does not allow for a full generalisation of conclusions. With regard to one of the aims of the work, which is to compare the two participating institutions, but overall generalisation is not expected. On the other hand, both institutions where the research takes place are considered to be of high quality in preparing teacher training students in their countries in terms of long-term results.

Another limit that we are aware of is the cultural differences between the two countries, which has an impact on current ways of education. Therefore, the survey results do not indicate the quality of education systems, although the findings may in some form imply strengths and weaknesses in the training of future teachers. For generalising formulations, it would be necessary to carry out a more comprehensive research survey, which is not our goal.

2.6. Ethical Aspect of the Research

Ethics in research has been addressed on multiple levels. The first is complete voluntariness regarding participation in research.

Both in the case of the qualitative phase and in the case of the quantitative phase. Respondents had the opportunity to decline participation before and during the research survey.

The second level is associated with complete information regarding the research survey's objectives and the processing method for obtained data.

In this context, it should be emphasised that all data were completely anonymised and that in the case of direct statements from the qualitative phase of the research, the names of the respondents are changed and all information according to which the respondents could be identified is removed.

The third level lies in the objectivity of data processing. Obtained data was evaluated by standard methodological procedures and during their processing and interpretation they were not manipulated in any way for the benefit or against any person or institution.

3. Results

The results analysis of the comparison of students' answers shows that a difference in the effect of COVID-19 on learning was notable. In their own learning process and in the quality of learning, Czech students perceived a greater impact of the pandemic, on the other hand, Vietnamese students felt the impact of the pandemic more in the mental health item (Table 1). The popularity of online learning (questionnaire item: I liked online learning) did not show a difference in the evaluation by students, and the average evaluation was between the statements "neither so nor so" and "I agree". Personal needs for online learning were also perceived similarly by students, as was the item regarding online resources for learning. The following item regarding the needs for online learning from the university was perceived differently by students in all parts, i.e. learning equipment, functional Internet connection, organisation of online classes and online resources. It is interesting that the view of personal preparation for online learning was the same in all items, and the University's sponsors for online learning were perceived differently, where Czech students took a more critical stance (Table 1).

Table 1. Comparison of the answers of UHK and DThU students

		P Mann-Whitney	H_0
Can you quantify the impact of COVID-19 on your learning?	**process of learning**	0,000000	Reject
	quality of learning	0,000000	Reject
	mental health	0,000000	Reject
Agree or disagree with a statement.	**I enjoyed online learning?**	0,314362	Accept
Personal preparation for online learning	**learning equipment**	0,086790	Accept
	internet connection	0,587589	Accept
	online classes´ organization	0,144089	Accept
	online sources	0,5802823	Accept
University's sponsors for online learning	**learning equipment**	0,000000	Reject
	internet connection	0,000004	Reject
	online classes´ organization	0,000000	Reject
	online sources	0,000000	Reject
Check and state difficulties that you had to face when learning online?	**learning equipment**	0,014086	Reject
	internet connection	0,001679	Reject
	technical problems	0,064730	Accept
	online learning system	0,932071	Accept
	interaction with lecturers	0,234536	Accept
	group interaction	0,000000	Reject
	digital skills	0,000228	Reject
	online learning resources	0,000000	Reject
	family background	0,000000	Reject
	personal health	0,000000	Reject
	learning time load	0,000000	Reject
	learning habits	0,000000	Reject
	mental health	0,000000	Reject
In your opinion, what are the advantages of online learning?	**reduce the risk of COVID-19 infection**	0,000000	Reject
	save time	0,004007	Reject
	save living cost	0,012436	Reject
	learning environment (at home) is comfortable	0,000556	Reject
	flexible schedule	0,050860	Accept
In your opinion, what are the disadvantages of online learning?	**lack of social contact**	0,025884	Reject
	in-person contact with a teacher	0,859044	Accept
	change in methods and forms of work	0,000000	Reject
	too much time with ICT	0,000032	Reject
	lower physical activity	0,196417	Accept
How do you assess the effectiveness of online learning?		0,000041	Reject
In case you could choose, what kind of learning you would prefer?		0,000000	Reject

Students encountered various problems during online learning. Equipment for online teaching - Vietnamese students rated it more negatively, internet connection caused significantly more problems for Czech students, similarly to group work and digital skills, online resources, family background, physical health, time spent on online teaching, learning habits and mental health. In all these items, Czech students perceived the impact of online teaching more negatively on their learning (Table 1).

Regarding the perceived benefits of online learning, students' views varied on most items. Students perceived the reduction of the risk of COVID-19 infection differently, Czech students less positively than Vietnamese students. The item saving time was perceived more positively by Vietnamese students than by Czech students. Savings in living expenses (commuting, dormitory fees, etc.) were rated more negatively by Czech students than by Vietnamese students. The greater flexibility of the schedule was similarly perceived by both groups of students. (Table 1)

The shortcomings or disadvantages of online teaching were similarly evaluated by students in the items of personal contact with the teacher and low physical activity. In the other items, lack of social contact and a lot of time with ICT, Vietnamese students showed a lower level of agreement than Czech students (Czechs significantly more inclined towards complete agreement). Notable and very different was the evaluation of the item change of methods and forms of teaching, when Czech students disagreed with this item more than Vietnamese students (Table 1).

Czech students perceived online teaching as less effective and were more open to having a combination of online and face-to-face teaching in the future, while Vietnamese students preferred face-to-face teaching (Table 1).

Evaluation or perception of online teaching from the teachers' point of view brings us intriguing results. Teachers from both countries agreed that the COVID-19 period had a great impact on the teaching process and mental health. Czech teachers were more aware of the change in the quality of teaching than Vietnamese teachers. The attitude towards online teaching (questionnaire item: I like online teaching) was also more negatively perceived among Vietnamese teachers. Even the Czech teachers did not express themselves completely positively in this item (mean 2.6+-0.94) (Table 2).

Table 2. Comparison of the answers of UHK and DThU teachers

		P Mann-Whitney	H0
Agree or disagree with the statement: The COVID-19 period had a significant impact on my learning in the area of:	**process of learning**	0,110974	Accept
	quality of learning	0,037165	Reject
	mental health	0,056947	Accept
Agree or disagree with a statement	**I enjoyed online teaching**	0,000954	Reject
What was your greatest need and how was it met? Need on my side:	**learning equipment**	0,000162	Reject
	Internet data	0,004836	Reject
	online classes´ operation	0,000560	Reject
	online resources	0,193354	Accept
What was the greatest need and how was it met? Need on my side but should have been covered by the university:	**University sponsors - teaching equipment**	0,203352	Accept
	University sponsors - Internet data	0,005047	Reject
	University sponsors - online classes´ operation	0,000007	Reject
	University sponsors - online references	0,052680	Accept
Tick the problems and their severity that you faced during online learning.	**teaching equipment**	0,006647	Reject
	Internet connection	0,022142	Reject
	technical problems	0,000006	Reject
	online teaching system	0,001214	Reject
	interaction with students	0,298564	Accept
	students 'digital skills	0,032250	Reject
	personal digital skills	0,271682	Accept
	online learning resources	0,115381	Accept
	family background	0,158169	Accept
	personal health	0,280043	Accept
	teaching time	0,000793	Reject
	teaching habits	0,048570	Reject
	mental health	0,539308	Accept

In your opinion, what were the advantages of online teaching?	Reduce the risk of COVID-19 infection	0,275966	Accept
	save time	0,005811	Reject
	save living cost	0,174428	Accept
	teaching environments is comfortable	0,003319	Reject
	flexible schedule	0,063104	Accept
In your opinion, what were the disadvantages of online teaching?	lack of social contact	0,171054	Accept
	In-person contact with students	0,060640	Accept
	Change in methods and forms of work	0,065838	Accept
	Too much time with ICT	0,230566	Accept
	Lower physical activity	0,962813	Accept
How would you rate the effectiveness of online teaching?		0,035592	Reject
If you could choose, which type of education would you prefer?		0,010708	Reject

In the area of meeting needs for online teaching, both groups of teachers similarly evaluated the items online resources, equipment provided by the university, and online resources provided by the university. However, when considering personal equipment, functional internet connectivity (provided by the university), and the organization of online classes, divergent outcomes emerge. Czech teachers perceive these items more negatively than Vietnamese teachers. (Table 2)

During online teaching, various problems arose in the field of technical security and human resources. Opinions vary on the items of teaching equipment, Internet connection, technical problems, online teaching systems, and students' digital skills. Here, the more negative evaluation of Czech teachers prevailed. A difference was also noted in the following items in which Vietnamese teachers rated items more negatively: time spent teaching (too much time) and personal dislike of online teaching (teaching habits). (Table 2)

The advantages of online teaching were perceived similarly in the items of reducing the risk of COVID-19 infection, saving living expenses, and scheduling the day more flexibly. The items saving time and the comfort of the home environment for teaching had different evaluations, where Vietnamese teachers tended to give negative evaluations more than Czech teachers (Table 2).

A notable fact is that the disadvantages of online teaching were perceived similarly by both groups of teachers. In none of the items (lack of social contact, impersonal contact with students, changes in teaching methods and forms, too much time spent on the computer or with other technology, less physical activity) was a statistically significant difference in the evaluation (questionnaire item: In your opinion, what are the disadvantages of online learning? [Too much time with ICT] - (1) - Totally agree, (2) - agree, (3) - partly agree, (4) - disagree, (5) - Totally disagree (Table 2).

The effectiveness of online teaching was perceived with a slight difference of opinion, with Czech teachers evaluating it as more effective than Vietnamese teachers. Similarly, perceptions varied in preferences for the type of teaching. Vietnamese teachers are more inclined towards a combination of offline and online teaching, while Czech teachers are more inclined towards offline (face-to-face) teaching (Table 2).

4. Discussions

It cannot be denied that e-learning has significant potential for the development of universities globally. Positive impacts on the structure of education, breaking traditions in education. Interestingly, it was the outbreak and rapid spread of COVID-19 that led to the temporary closure of schools. A prolonged lockdown forced schools and educational institutions to implement online learning [27]. Online learning is an indispensable solution for educational institutions during the COVID-19 period. Many studies have been conducted on the factors affecting the quality of online learning [28], [29].

The difficulties and interruptions resulting from the closure of schools and higher education institutions can also serve as opportunities for both faculty and students to learn and redefine their roles. It is evident that teachers and students have less time for interaction with each other and within the classroom setting. This shift significantly affects the professional development of students as well.

As noted by Ellis, Steadman and Mao [10], the pandemic's inevitable challenges prompted a reassessment of ICT practices out of necessity.

Conversely, Aristeidou and Cross [13] discovered that the pandemic has had diverse effects on student learning. About 42% of learners reported a decrease in the frequency of their learning activities, while 14% reported a positive impact. This suggests, as later discussed, that the pandemic should not be solely viewed negatively in terms of its impact on education.

In this study, academic innovation simply describes ideas about adapting to circumstances and changing teaching methods accordingly. Further, the ability to use technology both by lecturers and students is also a prerequisite for online education. The figures in Table 1 are proof that both teachers and students have the right perception of online teaching and learning.

The present study compared results between Dong Thap University and Hradec Kralove University according to perceptions as well as assessments on the part of learners and teachers. Difficulty in identifying factors affecting the learning environment [30] or a lack of reasonable pedagogy on the part of online instructors also explain this. Some studies have focused on the role of facilitator [31], [32]. However, this research clearly shows that both teachers and students play a key role in the success of online teaching. Furthermore, teaching and learning tools such as computers, Internet connections, and audio-visual equipment are also required; however, according to the survey results, online learning equipment has many limitations (lack-weak). Online learning resources are not diverse enough to provide training on how to organize online classes to achieve the desired effect.

Moreover, the implementation of online teaching presents several challenges related to technical infrastructure, replicating the interactive classroom environment found in face-to-face settings, availability of learning resources, and constraints in technology utilization by both teachers and students. According to the British Council [18], some educators find themselves overwhelmed by the abrupt transition to remote teaching. They struggle to navigate through the plethora of information, guides, and resources while simultaneously managing their classes. An intriguing perspective on the ICT competence of teachers in this scenario is offered by Öçal, Halmatov and Ata [33], whose findings suggest that teachers with 0-5 years of experience tend to have lower averages than those with 6-11 years and 12-17 years of experience. Additionally, teachers with over 24 years of experience exhibit lower averages compared to their counterparts with fewer years of experience.

This study also reveals several areas of research that deserve further attention. For example, designing electronic lessons [34]; remote support interventions. Further, pedagogical methods [35], [36] are necessary for the online learning experience. Furthermore, broader research (multiple learners) is required for more convincing results. Moreover, due to word limitations, this article has not fully exploited online teaching platforms.

While the "ideal scenario" in the context of online teaching is a priority in terms of knowledge development and professional development, it clearly does not make up for the lack of a real practice context [37], [38]. Our study enhances our understanding of the impact of the COVID-19 pandemic on online teaching and learning habits, but it is possible that some limitations have affected the research results. First, it must be admitted that the sample only includes students of a limited discipline (primary education) and teachers of a limited discipline (only teachers of primary education). Second, the data is subjective (i.e., the participants did not accurately assess themselves or the situation, as it affected the survey). Third, this is a parallel study between two countries. Lecturers and students have different backgrounds. Future studies should further analyze the role of learners and diversify the participants.

Regular classes are set up in what is known as a face-to-face tradition at numerous colleges in CZ and VT. Students study directly from lecturers and interact with the professors who are in charge of the subject. Colleges and institutions stopped offering in-person instruction after the COVID-19 pandemic broke out. There were numerous abrupt changes in a short period of time, and it was impossible to put off the kids' learning. The COVID-19 pandemic, which has affected approximately 1.6 billion students in more than 200 nations, has caused the worst disruption to the educational system in human history. Around 94% of students throughout the world have been impacted by educational facilities including schools and other learning environments [39]. Each lecturer must therefore be able to swiftly adjust to the way that the online software system organizes the class. Also, accessing course material can be very challenging for students, particularly when studying practical and experimental topics. These activities are only available through the virtual world system. When both teachers and students are active in the learning process, this is difficult [40]. Infrastructure issues, limited exposure of lecturers to online instruction, information, distance, an adverse home environment for learning, equity, and learning. Hence, it may be concluded that the COVID-19 pandemic had a significant impact on the caliber of university instruction.

According to statistics, the pandemic impacting the teaching process is comparable to that affecting the learning process (3.15-3.35). According to poll results, the pandemic has had a noticeable impact in VT (3.1), while it has also had a noticeable impact in CZ (2.6).

Online teaching resources were a key factor in the pandemic's challenges. Nowadays, there are numerous widely used tools, including Virtual whiteboards, WordPress, YouTube, Facebook, Edmodo, and other tools are in demand. Internet-based learning is not widely used by teachers. Especially during the COVID-19 season, teachers can give access, communicate lesson information, and view it as an effective teaching solution. Websites play a vital role in libraries since they are utilized to access a variety of information sources and services. These sources consist of tools for conducting research, public access catalogs, and academic databases. Links to relevant studies and other resources for academic work [41], [42], [43], [44]. Universities immediately retooled the system of facilities and equipment to match the needs of software systems, channels, networks, etc. when they implemented online instruction. Professors quickly master the art of instructing. When using the online teaching system, one must learn how to use online resources, use a lot of software, and survey data on equipment and facilities in order to meet instructional demand quickly (Table 2).

Many challenges are faced when teaching online, which negatively impacts instruction. Two nations, VT and CZ, demonstrate that the primary challenge is abrupt changes in working techniques and forms. It is crucial to stress that this is distinct from distance learning, which is "a brief change in working practices as a result of changing circumstances" [45]. The unreliable network system has a negative effect on how instructors and students communicate with one another. There are situations when the instructor does not signal the students (Table 2). Lecturers must labor continuously for long periods of time on a computer, which has an impact on their physical and mental health, especially when they work alone for extended periods of time. Teaching activities are hampered by a lack of resources. Items that are submitted to the electronic document system should be carefully chosen for their subject matter appropriateness and copyright. Not all documents are offered in electronic form, which is a truth. Also, there are benefits to online education in times of pandemics. No direct touch will lessen the chance of disease spreading when people work from home, even if we have not finished our vaccinations. Due to the shorter travel distance, changing between classes is also more convenient.

Because it has no impact on the classroom, changing the teacher's teaching schedule can occasionally be more practical and adaptable.

On the other hand, some professors think that the material being taught remains the same but can be used to encourage students to undertake their own research because it takes more time and research to complete the assignments given by the instructor. However, in order to accommodate the current atmosphere, material, and equipment, teachers must also modify the way they teach. Yet the educational procedure must provide high-quality results. Teachers, students, and educational administrators can all benefit from the challenges of online instruction by using them as an opportunity to become better workers. This is done to adjust to the circumstances and surroundings. The difficulties of educating online, according to Murgatrotd [46], are affordability and accessibility.

Both students and teachers have expressed that health significantly impacts the quality of online teaching and learning, while also noting that the preparation time for lessons is lengthier and more complex. Conversely, our findings align with those of Kidd and Murray [17] suggesting that amidst these extraordinary global circumstances, educators have facilitated students' learning experiences related to practice even when practical application was not feasible. This emphasizes the necessity of (re)defining professional learning in the absence of practical experiences, shifting it to new digital realms and forming new online and hybrid communities of practice.

However, we concur with the conclusions drawn by Flores and Gago [2] that, overall, student teachers continued their practicum activities, albeit with the necessity to swiftly adapt and adhere to evolving guidelines and recommendations. This adaptation process often occurred almost in real-time for them.

5. Conclusion

Based on the results presented, it is evident that the COVID-19 pandemic has had a profound impact on both students' and teachers' perceptions of and experiences with online education. The study compared the responses from students and academic staff at Dong Thap University (Vietnam) and the University of Hradec Králové (Czech Republic) regarding various aspects of online teaching and learning during the pandemic. The findings reveal a range of differences in perception and experience between the two groups and across different dimensions of online education.

In summary, the research demonstrates varied perceptions among students regarding the impact of the pandemic on learning, with Czech students emphasizing the academic aspect and Vietnamese students highlighting mental health concerns. The research also registered differences in students' and teachers' attitudes towards online teaching, with Czech students expressing more skepticism and preference for a hybrid approach, while Vietnamese students generally favor face-to-face instruction; and challenges faced by both students and teachers in adapting to online teaching, including technical issues, lack of resources, and concerns about the quality of education. Finally, the importance of health and well-being in the context of online education is highlighted, as both students and teachers acknowledge the significant impact of the pandemic on their mental and physical health.

By employing a mixed-methods approach and conducting a cross-cultural comparison between Vietnam and the Czech Republic, the study provides a comprehensive exploration of the topic. However, the research has limitations, including the potential for limited generalizability due to the specific sample and educational context, the subjective nature of the data collected, and the possibility of cultural bias. Additionally, while the research covers various aspects of online education, there may be areas that require further exploration. Despite these shortcomings, the findings contribute to our understanding of online education during a global crisis and provide a foundation for future research and policy development in this area.

Based on the findings of this study, the authors recommend that educational policymakers adopt appropriate strategies to support teachers and learners in the upcoming normal. Not only in the context of the COVID-19 pandemic and its variants but because online teaching and learning will open up opportunities to access quality education.

Acknowledgements

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