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Pre-Service Teachers' Online Learning Experience – Challenges and Lessons Learned

Arlinda Beka[1], Arberore Bicaj[2*]

[1]   University of Prishtina, Faculty of Education, Agim Ramadani St. No. N/A. 10000 Prishtina, Kosovo,
       arlinda.beka@uni-pr.edu
[2]   AAB College, Faculty of Social Sciences, Elez Berisha St., No. 56, 10000 Prishtina, Kosovo,
       arberore.bicaj@universitetiaab.com (Corresponding Author)

Annotation. This study aims to investigate the impact of the COVID-19 lockdown on the professional growth of pre-service teachers in adapting to virtual learning. It examines the experiences of 421 University of Prishtina pre-service teachers using a mixed-methods approach. Despite technical challenges, the results indicate increased peer collaboration. The study emphasizes the importance of raising the quality of online education in order to better prepare for emergencies in the future.

Keywords: *challenges, online learning, collaboration, professional development, pre-service teachers.*

Introduction

Online learning has become a major component of contemporary learning following the rapid development of information technology. Getting the best use of ICT equipment requires a stable internet connection. Once this infrastructure is in place, it creates the possibility of access to information regardless of time and location, emphasizing the prospects of online learning (Wisanti et al., 2020). The COVID-19 pandemic shifted the way of life, including education, transforming daily life through new work cultures and technology-driven service delivery models (Maatuk et al., 2022; Troisi et al., 2022). In response to the new situation, Higher Education Institutions- HEI-s switched to online learning as a strategy to supply learning continuity in the midst of this crisis (UNESCO, 2020). This shift was easier for societies with pre-existing infrastructure

and online learning experience, while others struggled to get on track, exposing immense disparities (Maldonado et al., 2011). Developed countries with advanced ICT infrastructure had an easy transition, while other countries faced significant challenges. Ensuring continuity of education for children and youth during the pandemic became an urgent necessity (OECD, 2020). This asynchronous shift highlighted the need for nimble responses to assessing teacher competencies (Maldonado et al., 2011; OECD, 2020). The abrupt shift also revealed widespread unpreparedness among educators and students, with many teachers and preservice teachers feeling unprepared to respond to the challenges of online learning (Hodges et al., 2020; Wisanti et al., 2020).

During the virtual teaching, researchers have identified that assessment, teaching techniques and content delivery limitations affect the students. Abiky (2021) stated that the majority of preservice teachers became anxious and entered the stage of "survival." These experiences necessitated seamless technology integration and more instructor competence in teacher's education programs. Integrating emerging technologies into classrooms or designing online learning spaces is not novel in education (Hodges et al., 2021, as cited in Aslan et al., 2022). However, the pandemic lockdowns necessitated an abrupt and unplanned transition to online teaching (Keren-Kolb, 2020). The pandemic period brought to attention different names used to describe online learning, i.e., "online learning", "distance learning", "virtual learning", etc., that in general all were referring to a non-face-to-face learning. This allows teaching and learning to take place in a synchronous mode or asynchronous mode. Synchronous learning is achieved through real-time teacher-learner interaction, while asynchronous learning offers the potential of self-directed, indirect interaction (Rasmitadila et al., 2020).

This study will focus on online learning, which is a method of education that uses information and communication technologies (ICT) without physical meeting with students. The study will examine the problems preservice teachers face with online learning and how these issues affect their views of its effectiveness. Also, the aim of this study is the utility of peer support and possibilities for professional development. This study analysis lesson learned from the lockdown period what to improve teaching quality.

Review of Literature

Changing toward online learning during the COVID-19 outbreak had many obstacles (Indrawan et al., 2022). COVID-19 measures impacted on the rise of online learning on an unprecedented level (UNESCO, 2020; WHO, 2020). Schools and universities, in order to continue their education, moved to online classes as the only possible way under those circumstances. In developed countries students have been familiar with

online learning systems like Moodle or Blackboard, but in developing countries, like Kosovo, online learning was not common (Heng & Sol, 2021).

While Kosovo's Ministry of Education recognized the ICT skills as crucial for pre-service and in-service training (MASHT, 2016), according to the study of Saliu and Bicaj (2022), overall digital competence among teacher is at a moderate level. There is an ongoing need for pedagogical adjustments and contextual support to help teachers and students overcome the difficulties of incorporating digital technology into the classroom (Viberg et al., 2022).

Transitioning from learning in-person to online learning demands flexibility and adaptability from both teachers and students (Pokhrel & Chhetri, 2021). Thus, the COVID-19 pandemic dictated the radical transformation in in the education system (Aristovnik et al., 2020). Learning online became the only way to continue education under those circumstances. In order for the students to get the best out of online learning, they needed to improve their skills and their equipment. Students found this transition to be challenging for them (Händel et al., 2020). The pandemic period has been a learning experience and will help education improvements in case of future similar situations.

If online learning is well designed and implemented, it can be as effective as face-to-face teaching and learning (Bao, 2021). Despite many efforts to improve online learning during the COVID-19 pandemic, effective implementation of online learning remains a challenge (Radu et al., 2020). The transition to online teaching and learning was disrupted by different challenges depending on students' levels and progress and when switching to different levels of studies. The majority could not follow up in pursuing their curricula or exams in the usual manner and not were able to follow their peers, leading them to negative feelings and impacting their wellbeing (Daniel, 2020; Beaunoyer et al., 2020).

However, there are benefits from online learning, such as being easy to reach, affordable, flexible, and able to cover large areas. But finding the right balance between the curricula, pedagogy and technology in responding to the learners' needs. is not easy especially in the crisis. Everyone involved in the education system faced challenges and experienced difficulties due to the COVID-19 pandemic (Händel et al., 2020). While we can't say if online learning is any better than face-to-face learning, we agree that besides difficulties, online learning was beneficial, too. The use of digital forms of education can make higher education more accessible regardless of time and space limitations (Kerres, 2018). There is an increased student interest in guidance and counseling services in online learning programs (Zawacki-Richter, 2020). Since online learning eliminates accommodation, transport and institutional costs, it is seen as a cost-saving way of education.

Due to pandemic lockdown measures, every education institution had to adopt new technologies and to adjust to the online teaching methods. This means that teachers and students needed to be taught how to use technology effectively (Dhawan, 2020). Even after the pandemic, most HEIs are adopting more towards online learning, the online tools, apps and technology usage are the core of building up online education. Many universities had a focus to incorporate new internet technologies into their teaching even before the COVID-19 pandemic.

As the quality of online learning improves, there is a need to address some pedagogical issues like collaboration, case learning, and problem-based learning, which are the core of traditional teaching methods (Kim & Bonk, 2006). Instead of determining whether online education can provide higher quality education, the real question is how to quickly and efficiently get institutions to provide online learning (Liguori & Winkler, 2020). An educational response to the government lockdowns due to COVID-19 pandemic was needed to help students' learning amidst social distancing (OECD, 2020). There was a need to increase online learning by investing in staff development of digital skills to increase students' understanding of pedagogical practices, allowing education institutions to remain competitive (Lemoine & Richardson, 2020).

 Teaching under such conditions is vital to understanding how teachers utilize pedagogic and digital materials in creative ways in effective teaching practice under significant limitations (Damşa et al., 2021). At university, the growth of students' learning through technology depends on how technology is utilized rather than its frequency or quality (Chien et al., 2016; Wekerle et al., 2020). Online learning with digital technology includes things like taking digital notes, highlighting, analyzing digital text, and taking online quizzes as a way to work through learning material. (Chi & Wylie, 2014). While educators may provide limited digital pedagogical methods, students have the power to influence their own learning through the use of established online tools or by constructing personalized learning environments with digital resources (Sailer et al., 2021).

To have an easy transition to online learning, there is a need to have digitally skilled teachers and students as well as ICT infrastructure in place. The pandemic imposed a fast transition, which was a challenge for many educational institutions. To ensure that students have structured and consistent learning opportunities, organizational modifications should be implemented (OECD, 2020).

While the online learning theories are shaped with the development of resources, platforms, and pedagogy, the shift to online learning during the COVID-19 pandemic is characterized as "emergency remote teaching." (Hodges et al., 2020) to differentiate it from quality online education (Yates et al., 2020). The unexpected fast change to online learning brought by pandemic allows students to have more freedom to study whenever and wherever they like but has brought challenges to support staff in HEIs

as they can assist a small number of professors with online training due to the high demand and short notice (Hodges et al., 2020).

To facilitate learning, the primary concern of education institutions should be the wellbeing of students and teachers. To make this happen, it is important to have good interaction between students and teachers. During the pandemic lockdown, this was hard to achieve. Considering the global health issue, teachers and students should define and improve their well-being goals (OECD, 2020). One of the negative impacts of the pandemic lockdown was the feeling of solitude and isolation for everyone including students. That's why during this period the virtual peer support and interaction become important and very supportive. Next steps will be guided by student and teacher opinions on new developments in technology (Czerniewicz, 2020).

Since educational institutions need to adjust to online learning and shift their usual way of classroom teaching, we can consider that the pandemic promoted a new era in education. The lockdown period was different from country to country. In some places it was for weeks, in some for more months, depending on the pandemic lockdown situation. To adjust to this new situation, new strategies were incorporated using web-based tools, broadcasting, sending homework assignments without requiring students to check in online, granting students their own work time, and offering professional development opportunities for teachers to transform their teaching methods (Zhao, 2020).

To successfully disseminate information and knowledge to a wider audience, Kosovo's educational institutions understand the significance of staying current with digitalization and ICT developments (Beka & Beka, 2017). Integrating ICTs is still an important part of implementing curricula, and it takes tech-savvy educators to help students make the most of online resources for professional growth (Beka & Gllareva, 2016).

In a previous study conducted by Beka (2021), when asked about their familiarity with online learning, 65.7% of teachers said they had never taught online, 31.4% said they had little experience, and a small number, 2.9% said they had regular experience in using online learning. Teachers who had exchange teaching mobilities abroad said that online teaching was less stressful as their mobility experience helped them to easier adjust to new ways of teaching easily. The standard of online teaching can be enhanced by utilizing what they know. This can be seen by students as an effort of teachers in being creative, flexible and innovative in their teaching (Keren-Kolb, 2020).

Online learning is solely dependent on the technological equipment and the reliable availability of an internet connection. Not having them can cause a serious problem with the quality of online learning and become a huge hindrance to institutions, teachers, and students (Adedoyin & Soykan, 2020). Although there have been attempts to invest in digital infrastructure and IT technology within Kosovo's education, serious gaps still remain (Zylfiu et al., 2023). The Ministry of education recognizes the persistent issues with teachers ICT skills and professional development (Buleshkaj et al., as mentioned in PIK, 2023).

So far in Kosovo, courses in universities are taught in-person with students in most programs regardless of study level. According to Beka and Hitchcock (2022), the Faculty of Education at the University of Prishtina is recognized as Kosovo's premier institution for teacher development, offering bachelor's and doctorate programs designed to equip future educators. Apart from this regular study programs at different levels, the Faculty of Education also has in-service teaching programs to help the professional development of teachers and educators.

So, the research is based on the Technological Pedagogical Content Knowledge (TPACK) model, which provides a comprehensive theoretical framework for studying how technology, pedagogy, and subject knowledge interact in online learning environments (Mishra & Koehler, 2006), and the Community of Inquiry (CoI) model, which emphasizes the importance of fostering social, cognitive, and teaching presence to ensure effective online learning experiences (Garrison et al., 2000). Vaughan and Garrison (2023) stress the need to maintain a balanced presence in all three areas, arguing that this helps online students feel less isolated and more connected to their peers.

Materials and Methods

Research design

The current study employed a mixed-methods design, incorporating both quantitative and qualitative approaches to comprehensively address the research objectives. Challenges, perspectives, and possibilities for professional growth in online learning were examined using a quantitative method based on deductive reasoning (Wilson, 2010). Qualitative research that looked at the context and processes of these interactions was added to this to inform future teaching methods. Both the quantitative and qualitative components worked together to answer the research questions; the former dealt with questions 1–4, while the latter added context to the results and dealt with question 5.

Research questions

1. What is the correlation between the difficulties pre-service teachers face in online learning and how effective they think it is?

2. What impact has peer collaboration had on the attitudes of pre-service teachers regarding online learning?

3. How can the difficulties you face during online learning impact your professional development possibilities through webinars, online conferences, etc.?

4. What is the effect of peer collaboration on online learning professional development opportunities?

5. In what ways can experiences during the pandemic impact online teaching practices?

Design of the instruments

The survey was prepared to evaluate the perceptions of pre-service teachers for online learning, challenges, professional development and peer collaboration. The questionnaire was piloted and verified as suitable for the pre-service teachers.

Measurement Scales

The interest characteristics were measured with 4-point Likert scales (Strongly Disagree = 1 to Strongly Agree = 4) to measure the strength of participants' feelings and opinions. The categories corresponding scales were as follows:

1. Challenges faced by pre-service teachers during online learning. Those challenges were evaluated using twelve questions.
2. Pre-service teachers' perceptions of online learning were evaluated using 18 questions.
3. Peer collaboration was evaluated using 11 questions.
4. Professional development of the pre-service teachers was evaluated using 8 questions.
5. Professional growth by participating in conferences, debates, etc.: Added 4 questions to account for the strength of professional development opportunities outside activities like webinars and conferences. Each scale was specifically developed to ensure consistency and appropriateness for quantifying the study's variables.

Validity and Reliability of the Data

To ensure the rigor and robustness of the instrument, both reliability and validity were systematically assessed:

1. *Reliability*: Internal consistency of the scales was tested using Cronbach's alpha, with results indicating strong reliability across all constructs:
   a. Pre-service teachers' challenges during online learning (12 items): $\alpha = 0.78$, showing a good level of reliability.
   b. Pre-service teachers' perceptions of online learning (18 items): $\alpha = 0.92$, indicating excellent reliability.
   c. Peer collaboration (11 items): $\alpha = 0.87$, indicating excellent reliability.
   d. Professional development through online learning (8 items, 0.74), and professional development through other opportunities, i.e., webinars online conferences, etc. (4 items, $\alpha = 0.72$), indicating good reliability.

2. *Validity*: Even though the questionnaire used in this study is standardized validity and reliability analyses were conducted to ensure its appropriateness for the sample, context and research purposes.

    i. Construct validity: Item-total correlations demonstrated significant relationships between items ($p < 0.05$), confirming that each scale adequately measured its intended construct.

    ii. Content validity: The instrument was reviewed by three experts of online learning, teacher development, and educational research to ensure its relevance, clarity, and alignment with the constructs under investigation. Expert feedback was incorporated to refine the instrument.

    iii. A pilot test was conducted with a small sample of pre-service teachers to ensure clarity and appropriateness of the items. Revisions were made from the feedback of the survey piloting before full-scale data collection commenced.

Data suitability for Regression Analysis

Before conducting the regression analysis, the dataset was evaluated to confirm its suitability through the fundamental assumptions:

1. The link between predictor variables (like problems and teamwork) and result variables (like views and professional development) was checked using scatterplots to show a linear relationship.
2. Assessments of residuals using Q-Q plots revealed a near-normal distribution.
3. To confirm that error variance was consistently distributed across all predictor levels, we examined all the residual plots for homoscedasticity.
4. There was no evidence of multicollinearity among the predictors, since the computed Variance Inflation Factor (VIF) values were less than 2.

It was proven that the information could be used for the regression analysis by the diagnostic test. This makes sure that the results are solid, easy to understand and reliable.

Instruments for research and samples

Quantitative study examined pre-service teachers' opinions of online learning, emphasizing difficulties, collaborative possibilities, and professional growth. An online survey was administered over seven sessions to a randomly chosen sample of 421 pre-service teachers. A simple random sampling technique was used to guarantee that each student in the whole population of 2,161 had an equal probability of selection (University of Prishtina, 2022). This method improved the sample's representativeness by mirroring the variety and attributes of the larger student population (Thomas, 2020).

Adding to the qualitative part of this study a focus group discussion was organized with seven pre-service teachers who experience pandemic online learning period. This sample was intentionally chosen to provide comprehensive insights into their experiences (Ravitch & Carl, 2019).

Quantitative design

The survey for this study was conducted using Google Forms (https://docs.google.com/forms).

The questionnaire was conducted with 421 pre-service teachers from the Faculty of Education at the University of Prishtina, with 84% of respondents falling within the 20–25-year age range and the remaining 16% being older than 26 years.

Table 1
Characteristics of the Sample

Variable	N	%
20–22 years old	241	57.2
23–25 years old	114	27.1
26–28 years old	34	8.1
29–30 years old	10	2.4
30+ years old	22	5.2
Bachelor's degree	288	69.4
Master's degree	127	30.6

The questionnaire was distributed from April to May 2020. Data was analyzed using SPSS (2007), ensuring accuracy and reliability. The analysis methodologies employed comprised descriptive statistics, t-tests, Pearson's correlation, and regression analysis, consistent with the research objectives and inquiries.

Qualitative design

The qualitative study employs Thematic analysis (TA), concentrating on identifying predominant themes such as pre-service teachers' collaboration and adaptability to online learning. Semi-structured interviews helped to understand easier responses from respondents. This approach facilitates the investigation of participants' in-depth perspectives on the pandemic era from a contemporary standpoint, yielding significant findings (Christou, 2022). Semi-structured questions were also used in the focus group discussions. Responses were recorded and transcribed with the participants' prior consent.

The demographic data of the focus group participants is shown in the following table.

Table 2

Sample Characteristics

No.	Gender	Study level during pandemic	Current study level	HEI	Code
1	F	BA: 4th year, ECE	MA: Pedagogy	Fac. of Ed-UP	S01
2	F	MA,1st year, Ed. Leadership.	MA; 2nd year, Ed. Leadership.	Fac. of Ed-UP	S02
3	F	MA, 1st year, Pedagogy	MA, Ped, 2ndyear	Fac. of Ed-UP	S03
4	F	BA, 4th year, Elem.	MA, Ped, 1st year	Fac. of Ed-UP	S04
5	F	BA, 4th year, ECE	MA, Ped	Fac. of Ed-UP	S05
6	F	BA, 4th year, Elem.	MA, Ped, 1st year	Fac. of Ed-UP	S06
7	F	MA: 1st year, Ped.	MA, Ped, 2ndyear	Fac. of Ed-UP	S07

Participants in the focus group discussion were asked some of the following questions:

1. What opportunities for peer collaboration did you have during the online learning?
2. How have webinars, online conferences, and other forms of online learning contributed to your professional growth? Have those opportunities helped you and prepared you for the challenges you faced during this period?
3. In your opinion, what would have made online learning more useful?
4. What are some of the online training pieces you're looking for to improve your career? Is there a particular reason why?
5. Do you believe that in case of future emergencies, online learning will function better or worse?
6. Did online learning transform your education experience?

Research data

This study aimed to better understand the challenges that pre-service teachers faced during their pandemic online learning. The effects those challenges had on pre-service teachers' professional development and the importance of peer collaboration and mutual support among them. Also, how we can improve teaching methods in the future based on lessons learned during the pandemic online learning period.

The goal of this mixed-methods design is to enhance the quality and resilience of future learning systems by investigating the relationships between peer collaboration,

students' experiences, professional development opportunities, and online learning challenges.

Results of Quantitative Research

This chapter presents the data analysis based on 421 responses from students of the Faculty of Education in Pristina. The research utilized a mixed-methods approach to address the research questions. The subsequent findings emerge from the quantitative analysis conducted. To address RQ1, Pearson's correlation analysis was employed to examine the relationship between pre-service teachers' challenges in online learning (X) and their perceptions of online learning (Y). A significant negative correlation was found during the correlation analysis ($r = -.51$, $p < .001$), suggesting that higher levels of challenges faced by pre-service teachers are associated with less favorable perceptions of online learning. Pre-service teachers who encountered greater challenges during the online learning regarded it as less effective.

Table 3
The Summary of the Correlation Analysis for RQ1

		1	2
Pre-service teachers' perceptions	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	420	
Pre-service teachers' challenges	Pearson Correlation	-.51[**]	1
	Sig. (2-tailed)	.00	
	N	420	421

**$p < .01$

In addition, a regression analysis was conducted to investigate the impact of peer collaboration on pre-service teachers' views of online learning in response to RQ2. The model was significant ($F(1, 419) = 247.60$, $p < .001$, $R^2 = .37$), meaning that peer collaboration accounts for 37% of the variation in pre-service teachers' opinions about online learning. For every unit increase in peer collaboration, pre-service teachers' views of online learning improve by one unit, as indicated by the regression coefficient ($\beta = 1$, $p < .001$). This indicates that higher levels of peer collaboration are associated with more favorable opinions about online education.

Table 4
The Summary of the Regression Model for RQ2

Model	R	R²	Adjusted R²
	.61	.37	.37

Table 5

ANOVA for RQ2

Source	The Sum of Squares	Df	The Mean Square	F	Sig.
Regressions	37.75	1	37.75	247.60	.000
Residuals	63.88	419	.15		
Totals	101.62	420			

Table 6

Coefficients for RQ2

Predictor	B	SE B	β	T	Sig.
(Constant)	.64	.07		9.46	.000
Collaboration	.63	.04	.61	15.74	.000

To assess RQ3 regarding how pre-service teachers' difficulties with online learning affected their possibilities for professional development through conferences, discussions, and other means, a regression analysis was conducted. Although the effect size was small, accounting for only 1.1% of the variance, the model was significant ($F_{(1,419)}$ = 4.80, $p < .05$, R^2 = 0.011). The regression coefficient indicates that professional development possibilities dropped by one unit for every unit increase in the problems encountered during online learning (B = -1, $p < .05$). Challenges in online learning and chances for career growth, via webinars, conferences, and debates, was statistically significant, although the effect size was minimal.

Table 7

The Summary of the Regression Model for RQ3

Model	R	R²	Adjusted R²
	.11	.01	.47

Table 8

ANOVA for RQ3

Source	The Sum of Squares	Df	The Mean Square	F	Sig.
Regressions	1.06	1	1.06	4.80	.030
Residuals	92.41	419	.22		
Totals	93.47	420			

Table 9

RQ3 Coefficients

Predictor	B	SE B	β	T	Sig.
(Constant)	3.31	.07		45.12	.000
Collaboration	-0.9	.04	-.11	-2.19	.030

To investigate how peer collaboration influences professional growth opportunities through online learning, a final regression analysis was conducted to address RQ4. According to the statistically significant model (F (1, 419) = 154.82, p < .001, R² = .27), peer collaboration accounts for 27% of the variation in professional development possibilities through online learning. For every one-unit increase in peer collaboration, professional development possibilities also increase by one unit, according to the regression coefficient (B = 1, p < .001). The results showed that collaboration had a substantial impact, increasing the chances of professional development through online learning.

Table 10

Summary of the Regression Model for RQ4

Model	R	R²	Adjusted R²
	.52	.27	.27

Table 11

ANOVA for RQ4

Source	The Sum of Squares	Df	The Mean Square	F	Sig.
Regressions	35.64	1	35.64	154.82	.00
Residual	96.45	419	.23		
Total	132.09	420			

Table 12

RQ4 Coefficients

Predictor	B	SE B	β	T	Sig.
(Constant)	1.14	.08		13.76	.00
Collaboration	.61	.054	.52	12.44	.00

Results of Qualitative Research

By offering additional details and insights that would support the conclusions drawn from the quantitative data, the qualitative method used in the study supplemented and improved the research. Responses of pre-service teachers about their experiences with online learning during the pandemic were subjected to thematic analysis. Then, by selecting and creating suitable topics, the participants' reactions were made visible. Qualitative results give us a better understanding of the research topic because they show how deep and diverse the opinions of pre-service teachers are. The results directly respond to the research question (RQ5) about how the opinions from online learning can improve future educational approaches. Respondents from focus group discussions shared their experiences and what they learned during the pandemic online learning period. According to what they shared, the pandemic, among other things, caused fear and uncertainty as well as loneliness and difficulties in following up on online classes.

Students were used to learning in person, in class, so the sudden changes made them nervous and made it hard for them to adjust. Many problems and stresses arose because both students and teachers had no prior experience with online learning. See Table 13 below for more information.

Table 13

Students' and Graduates' Perceptions About the Online Learning Period

Codes	Statement Examples
Challenges of on-line learning	"The pandemic made online learning challenging, but over time, I adapted and gained valuable experience, turning it into a rewarding challenge."
Communication barriers	"I struggled with participation in online learning, avoiding speaking out of fear of being judged. It felt awkward, and connectivity troubles made things even more difficult."
Positive learning experience	"During my master's program, I had a wonderful online learning experience. Engaging lectures and a friendly group environment enhanced discussion. Despite the delayed start, all sessions were completed, and I truly liked them."
Emotional struggles	"This was a difficult time for me because COVID affected me both emotionally and physically. I attended lectures out of obligation rather than focusing. Overwhelmed by information and long study hours, I often felt exhausted. Writing in my journal became my way of coping with the stress."
Stress and exhaustion	"COVID made this period emotionally challenging. I attended lectures out of obligation, feeling overwhelmed and exhausted."
Pressure to participate	"I felt pressured to speak in online classes, making it uncomfortable."

According to Table 13, the transition to online learning was equally challenging for both BA and MA students. They were insecure and unsure of their abilities and career advancement. For them, there was a great deal of uncertainty, as online learning is inherently unpredictable. Both BA and MA students eventually acclimated to and valued online learning, despite early difficulties, according to the interview. During the pandemic lockdown, online seminars, conferences, and webinars were a great opportunity to gain information and connect with people from various nations.

Table 14

Online Professional Development Opportunities According to Pre-service Teachers

Codes	Statement Examples
Challenges at the beginning of the online learning	"I felt unprepared for online study, although I assuming I had decent IT skills."
Adaptation to online learning opportunities	"Before the pandemic, I never anticipated joining online events, but it became quick and convenient, leading to my active participation in webinars and conferences."
Engagement in online Webinars	"During this pandemic, I participated in my first online webinars, which were hosted by teachers. They were valuable and captivating and I still look for free webinars today." "The pandemic introduced me to online webinars, which I found valuable and engaging. Faculty-organized sessions sparked my interest, and I continue exploring free webinars to expand my knowledge." "Online learning was useful, as it was the only way of learning during the pandemic."
Ongoing interest for webinars	"I discovered online webinars through various platforms. They became a valuable learning tool, and I continue exploring them for new insights."

Table 14 above indicates that student collaboration was a crucial skill highlighted in the interviews, largely due to their limited experience with online learning. Students worked together, relying on each other's expertise, to solve obstacles. According to the findings, students actively sought new possibilities and welcomed collaboration to overcome obstacles. They worked together, which helped them tremendously throughout the pandemic with their continuing research.

Table 15

Collaborative Student-Peer Learning in Online Classrooms

Codes	Statement Examples
Engaging in supportive peer collaboration	"Having the opportunity to learn from a community of like-minded individuals made my experience with online courses very rewarding." "I would have been totally disoriented in the absence of teamwork."
Collaboration and online communication	"Apps like WhatsApp allowed students to keep in touch and work together on projects." "Beyond online learning, we completed all projects as a group, making it a valuable social experience."
Growth in collaboration skills	"Collaboration grew over time as we realized the need for support, teaching us to work together and help each other." "I enjoyed helping my colleagues."

A crucial feature of online learning environments is peer collaboration, as seen in Table 15. Pre-service teachers found that being part of a larger, supportive group helped them overcome challenges more easily. Students collaborated with one another using various social media platforms for projects and assignments, which enhanced their productivity and interaction. This study indicates that students' collaboration improved as they recognized the need for mutual assistance, leading to a desire to support one another. Working together made this activity more fun and effective for learning.

Table 16

Lessons Learned and Adaptation to New Situations

Codes	Statement Examples
Skill development and practical application	"…when I think about that period now, I see that it gave me a very good experience which I now use in a very efficient way." "Invest in their students the development of skills necessary for the 21st century." "The skills I gained during the pandemic made this task easier, and now it feels like a natural part of our daily lives and profession."
Adjusting to the implementation of new professional practices	"Meeting parents online was once difficult, but pandemic skills made it effortless. It is now a typical aspect of life and work."
Being prepared for the obstacles that are ahead	"In the unlikely event of another pandemic, we will be able to swiftly adjust and provide seamless support for our students". "This time, we'll be prepared, and I'll make learning even more interesting and structured."

Table 16 shows the problems caused by the pandemic and pre-service teachers' thoughts on what was important to them at that time. Respondents stated that this pandemic has equipped them with the skills that enabled them to better handle future similar situations. According to them we would have a better education once we improved the technology and developed better skills for their use.

Lessons learned from the pandemic online learning period

Online learning during the pandemic period showed us what can be improved in regard to online learning. This includes improvement of digital literacy skills and technology infrastructure. Additionally, the shift to online education highlighted the differences in students' access to technology, underscoring the need to address equality and provide equal learning opportunities for everyone (Czerniewicz et al., 2020). Many students found online learning as good experience since its flexible schedule. Online learning required online teamwork, enhancing better collaboration among teachers and pre-service teachers, regardless of their physical distance. The pandemic required a redesign of online learning practices, resulting in continued quality improvement (Lapitan et al., 2021). Online learning during the pandemic period made pre-service teachers more aware of the need to develop their digital skills and build up collaboration through teamwork. There are three essential learnings from the pandemic online learning period: digital skills and digital infrastructure, student in focus learning and teamwork, and teachers' continuous professional development.

Discussions and Conclusions

This study explains students' perceptions of pandemic online learning and its effect on their academic achievements. Inadequate access to necessary materials, language barriers, and technical issues all have a role in limiting students' capacity to fully immerse themselves in online learning (Hung et al., 2010). The inequity in access to online learning is an obstacle hindering the improvement of education. Current studies show that it is important to intervene in removing those obstacles and providing equal access to education for everyone. The institutionalized nature of traditional education at the University of Pristina further complicates efforts to integrate digital learning strategies amidst a worldwide trend toward online education (Beka, 2021).

Persistent obstacles, such as poor digital infrastructure and a lack of online resources, prevent students from making the most of their professional growth opportunities, even though these opportunities are evenly distributed between undergraduates and graduate students (Rabby and Madden, 2021; Simamora, 2020; Erlangga, 2022). These results back up Ali's (2020) claim that online education systems must be enhanced immediately in

times of crisis, highlighting the need for better infrastructure, skill development, and allocation of resources to guarantee the efficacy and continuity of education.

As a result of this study, more is known about how joint involvement can help students be fulfilled and help their teachers to improve their skills and be better teachers. According to the findings, there was a high-quality, beneficial impact of peer collaboration on development. This conclusion is in line with the viewpoint of Wong and Chapman (2023) about the importance of social contact in virtual settings, and it shows that professional development opportunities are being expanded in addition to learning experiences being improved.

Getting the most out of online learning systems, general education theories recommend substantial social interaction. The difficulties that students and teachers have are further complicated by the fact that online learning was not widely used before the pandemic and by the fact that digital literacy was low in Kosovo (as Bond (2021) points out). Nonetheless, qualitative findings suggest that throughout this pandemic, pupils developed crucial abilities, including time management and problem-solving (Rahiem, 2021; Mishra et al., 2020). The research is consistent with Trilling and Fadel's (2012) recommendation to capitalize on disruptions to establish more resilient education systems, particularly by investing in infrastructure and improving digital capabilities.

This study answers the main question by showing how problems of online learning have a significant impact on students' views. To answer the main question, the study shows how the problems of online learning have a wide range of effects on students' opinions. To promote education resilience, we need to address systematic restrictions. The education system in Kosovo has improved its education a lot, regardless of difficulties with digital skills and digital infrastructure. There is a need for further investments in continuous professional development, providing equitable access to existing resources and enhancing the technological integration in education.

To make education better in Kosovo and make the country more resilient, it is important to resolve the problems with infrastructure and technology and promote peer collaboration and students-centered online learning spaces aligning with long-term digitalization goals. Future efforts should be directed towards enhancing professional development activities for teachers and pre-service teachers and ensuring equal access to digital resources and tools.

Recommendations

1. Increasing awareness and knowledge of online learning through sharing success stories for inspiration and explaining online learning.
2. Enabling equal access to online professional development opportunities for everyone.

3. Providing assistance and help to overcome the technical problems, language barriers and access to information. Encouraging pre-service teachers to enhance collaboration on projects and interactive discussions.
4. Enhancing digital literacy skills by providing training and resources.

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Būsimųjų mokytojų mokymosi internetu patirtis – iššūkiai ir išmoktos pamokos

Arlinda Beka [1], **Arberore Bicaj** [2*]

[1] Prištinos universiteto Edukologijos fakultetas, Agim Ramadani g., Nr. N/A, 10000 Priština, Kosovas, arlinda.beka@uni-pr.edu

[2] AAB kolegija, Socialinių mokslų fakultetas, Elez Berisha g., Nr. 56, 10000 Priština, Kosovas, arberore.bicaj@universitetiaab.com

Santrauka

Šiame tyrime nagrinėjama Prištinos universiteto absolventų, jau pradėjusių dirbti mokytojų, patirtis ir analizuojama, kaip COVID-19 pandemijos sukelti padariniai paveikė šių mokytojų profesinį tobulėjimą ir perėjimą prie internetinio mokymosi. Straipsnyje tiriamos problemos, su kuriomis susidūrė būsimieji mokytojai, pavyzdžiui: prasta prieiga prie išteklių, interneto ryšio problemos ir tinkamų skaitmeninių įgūdžių trūkumas, kurie, mokytojų nuomone, susilpnino mokymosi internetu galimybes. Tyrime pabrėžiama būtinybė tobulinti mokymąsi internetu, jei ateityje vėl susidarytų ekstremali situacija, t. y. reikėtų kurti geresnę infrastruktūrą, ugdyti skaitmeninius įgūdžius ir skaitmeninį raštingumą bei šalinti kliūtis, kad būtų sudarytos vienodos galimybės naudotis švietimo ištekliais. Darytina išvada, kad tarpusavio pagalba turi teigiamą poveikį mokymosi rezultatams ir profesiniam tobulėjimui. Taip pat nustatyta, kad mokymosi internetu patirtis pandemijos metu padėjo būsimiesiems mokytojams pagerinti skaitmeninius įgūdžius, laiko valdymo ir problemų sprendimo įgūdžius. Rekomenduotina skirti daugiau lėšų nuolatiniam profesiniam tobulėjimui, ypač skaitmeninio raštingumo, laisvai prieinamų išteklių ir švietimo technologijų integravimo srityse. Taip pat reikia puoselėti tarpusavio bendradarbiavimą ir orientuotis į internetinių mokymosi aplinkų kūrimą, atitinkantį ilgalaikę skaitmeninimo politiką, kad būtų pagerinta Kosovo švietimo sistema.

Esminiai žodžiai: *iššūkiai, mokymasis internetu, bendradarbiavimas, profesinis tobulėjimas, būsimieji mokytojai.*