



EFFECTIVE ONLINE LEARNING ENVIRONMENT FROM THE PERSPECTIVE OF PRESERVICE TEACHERS AND TEACHER EDUCATORS*

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Research Article

ABSTRACT

In recent years, online learning environments, which are widely used in higher education, have been the subject of numerous studies. This qualitative research aims to determine the views of teacher educators and preservice teachers who have experienced online learning environments. The participants in the study consisted of eight teacher educators from various fields working in the Faculty of Education of a state university in Türkiye, and 40 preservice teachers studying at the same university. Data were collected from the participants through open-ended questions and concept maps. The research results revealed that teacher educators and preservice teachers emphasized important issues related to online learning environments. In particular, preservice teachers stressed the importance of communication and interaction elements in online learning environments. In contrast, teacher educators shared views that drew attention to various dimensions of online learning environments, including course design, technical issues, student interest, and motivation. The research results provide valuable insights and recommendations, particularly in the context of teacher education, regarding the design, organization, and implementation of online learning environments. Finally, based on the research results, the need for a multifaceted, detailed, and comprehensive examination of online learning environments through new research is highlighted.

Keywords: Online Learning Environment, Qualitative Research, Teacher Education

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ÖĞRETMEN ADAYLARI VE ÖĞRETMEN EĞİTİMCİLERİNİN BAKIŞ AÇISINDAN ETKİLİ ÇEVİRİMİÇİ ÖĞRENME ORTAMI

Araştırma Makalesi

ÖZ

Son yıllarda, yükseköğretimde yaygın olarak kullanılan çevrimiçi öğrenme ortamları birçok çalışmanın odak noktası olmuştur. Bu nitel tasarımlı araştırma ile, çevrimiçi öğrenme deneyimi yaşayan öğretmen eğitimcileri ve öğretmen adaylarının çevrimiçi öğrenme ortamına ilişkin görüşlerinin belirlenmesi amaçlanmıştır. Araştırmanın katılımcılarını Türkiye'de bir devlet üniversitesinin Eğitim Fakültesinde görev yapan farklı alanlardan sekiz öğretmen eğitimcisi ve aynı üniversitede öğrenim gören 40 öğretmen adayı oluşturmuştur. Katılımcılardan veriler açık uçlu sorular ve kavram haritaları aracılığıyla elde edilmiştir. Araştırma sonuçları, öğretmen eğitimcilerinin ve öğretmen adaylarının çevrimiçi öğrenme ortamı konusunda önemli noktalara işaret ettiklerini göstermiştir. Özellikle, öğretmen adayları çevrimiçi öğrenme ortamında iletişim ve etkileşim unsurlarının önemini vurgularken, öğretmen eğitimcileri ders tasarımı, teknik konular, öğrenci ilgisi ve motivasyon gibi çevrimiçi öğrenme ortamının farklı boyutlarına dikkat çeken görüşler paylaşmışlardır. Araştırma sonuçları, özellikle öğretmen eğitimi bağlamında çevrimiçi öğrenme ortamlarının tasarımı, organizasyonu ve uygulanması açısından önemli ipuçları ve öneriler sunmaktadır. Son olarak araştırma sonuçlarından hareket edildiğinde, çevrimiçi öğrenme ortamlarının yapılacak yeni araştırmalar ile çok yönlü, detaylı ve kapsamlı biçimde incelenmesi ihtiyacı ön plana çıkmaktadır.

Anahtar Kelimeler: Çevrimiçi Öğrenme Ortamı, Nitel Araştırma, Öğretmen Eğitimi

Yasal İzinler: Araştırma, Gazi Üniversitesi Etik Komisyonunun onayıyla (Toplantı tarihi: 21.09.2021, Toplantı sayısı: 14, Araştırma kodu: 2023-244, Belge tarih ve sayısı: 06.03.2023-E.604720) yürütülmüştür.

1. INTRODUCTION

As a comprehensive field, teacher education has been the focus of much research and study from the past to the present. The effectiveness of learning and teaching processes is an important theme in this context. Previous studies (e.g., Grösser, 2007; Smith & Baik, 2021; Murphy et al., 2021) have reported results on effective learning and teaching. On the other hand, ongoing changes in effective learning processes have consistently offered researchers novel ideas for monitoring and analyzing them. Online learning, which has been preferred at times for various reasons from the past to the present, has become more widely used in higher education courses in recent years. In particular, online learning became crucial in learning and teaching processes during the pandemic (Almahasees, Mohsen & Amin, 2021; Shaid et al., 2021; Kulal & Nayak, 2020). Many schools adopted online teaching methods to continue students' learning during this period (WuS-Y, 2021). Nevertheless, the shared learning experience in an online learning environment, where students and instructors come together, has different characteristics compared to face-to-face learning environments.

In an online professional development environment, students' interactions with learning materials, peers, and/or instructors are mediated through advanced information technology (Alavi & Leidner, 2001, p. 2; cited in Collins & Liang, 2015). The wide range of online learning characteristics suggests that it was always accessible, supported diverse learning experiences and collaborative learning, enabled multi-intelligence, provided online feedback, enhanced student reflection skills, and provided scaffolding for online learning. Online learning is also noteworthy for its accessibility anywhere, anytime (Maylani et al., 2015). Therefore, all those features and aspects of online learning made it a research focus. Steele et al. (2023), for example, emphasized that teaching time for a faculty member in an online classroom is limited; therefore, it is important to use it effectively. Based on the literature, the current study employs a qualitative research design to examine the perspectives of teacher educators and preservice teachers (PSTs) on the effectiveness of online learning environments. This approach seeks to capture the nuanced views and experiences of preservice teachers and teacher educators that shape their perceptions of the efficacy of online teaching and learning.

2. THEORETICAL FRAMEWORK

There are various studies (e.g., Rapanta et al., 2020; Almahasees et al.; Mohsen & Amin, 2021) in the literature on online learning and teaching environments. Many studies, for instance, investigated the views of teachers and students who experienced online education in different contexts. For example, Chen et al. (2021) designed a study to investigate learners' experiences, needs, expectations, and challenges in the online learning setting in the faculty of business. Research results indicated that students' satisfaction was highly correlated with content coverage incorporated into online learning technologies. Likewise, Muthuprasad et al. (2021) focused on students' perceptions and preferences regarding online learning. They also investigated students' preferences for various attributes of online classes to help design an effective online learning environment. The study results indicated that students (n = 307) perceived the flexibility and convenience of online classes as attractive.

A similar study by Shah et al. (2021) also investigated the impact of the online learning climate on student engagement, yielding remarkable findings. In their study, 689 university students in Pakistan were administered a web-based questionnaire. The results did not suggest that the online learning environment had a direct impact on student engagement. The study also suggested specific practical implications for policymakers to consider the students' psychological needs within virtual teaching environments.

It is possible to increase the number of study examples focusing on online learning. The studies generally offer important insights regarding the challenges, efficiency, and affective dimensions of online learning. Based on the brief review presented so far, focusing on and studying the online learning environment within the scope of teacher education will provide valuable insights for teacher education practices. Based on the study examples presented so far, this study aims to examine the topic in the context of online learning environments in teacher education, focusing on the perspectives of stakeholders (teacher educators and preservice teachers) regarding teacher education practices.

3. METHOD

3.1. Study Design

This study was designed qualitatively to examine in detail preservice teachers' and teacher educators' views on online learning based on their experiences. For qualitative research, problems are interpreted in terms of the meanings that individuals attribute to their situations and experiences (Aspers & Corte, 2019; Morgan, 2022). This study was conducted qualitatively because it aimed to provide an in-depth picture of the topic it focused on (Mankad & Jadeja, 2013) and was well-suited to the study. From this point, phenomenological research was used specifically. The phenomenological approach, which has seen a noticeable increase in use as a research method in recent years, particularly in educational research (Stolz, 2023), also provides information about participants' experiences of the phenomenon under study (Eddles-Hirsch, 2015). In this study, the focus was on participants' experiences with online learning as a phenomenon. The participants in this study experienced online learning during the pandemic period. In this respect, it is assumed that they possess rich knowledge and experience on the subject.

3.2. Participants

The study group for this research consists of eight teacher educators and 40 preservice teachers from different departments of the Faculty of Education at a state university in Türkiye, selected using a purposive sampling technique. Purposive sampling, one of the most frequently used research strategies, provides access to key participants who can help identify information-rich situations (Suri, 2011; Gentles et al., 2015; Palinkas et al., 2015; Campbell et al., 2020). The participants in this study have experience with online learning environments, particularly since the courses were held online during the pandemic period. Table 1 shows the distribution of the participants by gender.

Table 1. The Distribution of the Participants by Gender

Gender	Teacher Educators		Preservice Teachers	
	f	%	f	%
Female	6	75	29	72.5
Male	2	25	11	27.5
Total	8	100.0	40	100.0

Accordingly, most of the preservice teachers participating in the study (72.5%) are female participants. A similar situation is also observed in the distribution of the eight teacher educators who constitute the other participant group of the study. Six of the eight teacher educators included in the study are female, and two are male.

3.3. Data Collection and Analysis

3.3.1. Data Collection Process

In this study, data were collected through a form (Appendix 1) prepared by the researcher. In this form, participants were asked open-ended questions. Participants were also asked to draw a concept map reflecting their views on effective online learning environments and their features. In qualitative research, open-ended questions allow participants to provide detailed answers and are used to explore and understand topics and processes in depth (Weller et al., 2018; Desai & Reimers, 2019). As an educational tool, concept maps contribute to meaningful learning (Machado & Carvalho, 2020) and are a type of visual organizer used in scientific research and teaching (Butler-Kisber & Poldma, 2010; cited in Conceição et al., 2017). Concept mapping allows individuals to visualize relationships among concepts (Lanzing, 1996; cited in Wheeldon & Faubert, 2009). Concept maps are used for various educational purposes, particularly in qualitative research. In qualitative research, concept maps can be used as an alternative in the analysis and data reduction processes and can also enhance visualization in the presentation of findings (Daley, 2004; Ligita et al., 2022). Given that preservice teachers acquire the knowledge and skills to prepare concept maps across various courses within the teacher education program, participants were informed that additional information about concept maps could be provided if needed. The stages followed in the data collection process in this research are summarized below:

- For the content validity of the prepared form, the opinion of another researcher, who was informed about the subject and purpose of the study, was also obtained.
- Ethical approval was obtained from the Gazi University Ethics Committee prior to data collection.
- The form, prepared as a data collection tool, was given to preservice teachers in person by the researcher during the spring semester of the 2022-2023 academic year. Those who wished to do so were also informed that they could write their answers and submit them online. The form prepared for teacher educators was sent via email to participants who volunteered to participate in this study.
- For the data collected from the participants, datasets were created in separate files on the computer for preservice teachers and lecturers.

3.3.2. Data Analysis

Content analysis was used to examine the written responses to the open-ended questions in the form sent to participants. One key aspect of content analysis is the researcher's adherence to a qualitative perspective (Bengtsson, 2016). To this end, the researcher carefully examined the dataset several times. Subsequently, the findings section was prepared within the framework of themes determined by considering the scope and focus of the questions posed to the participants. Some participants created concept maps using a computer program, while others drew them themselves. Since not all participants answered the optional concept map question, only concept maps created by those who did are included in the study. During the analysis, the sample analysis unit was shared with another researcher, and a consensus was reached on the analysis. Furthermore, the themes identified were reviewed with this researcher, who is knowledgeable about qualitative research and the use of concept maps, and the included quotation examples were examined together. This process contributed to the reliability of the study, particularly in the analysis and presentation of findings. The research findings are

presented under several subheadings based on the answers provided to the questions in the form given to the participants. The participants' answers to related questions in the form were analyzed together and reflected in the findings section.

4. FINDINGS

In this study, the participants' opinions were presented by grouping the answers given to the questions in the form provided to them under three headings: (1) characteristics of effective online learning environment, (2) Positive characteristics of the online learning environment, and (3) Negative characteristics of the online learning environment.

4.1. Characteristics of Effective Online Learning Environment

This section of the study presents examples reflecting the views of preservice teachers and teacher educators on the characteristics of an effective online learning environment, along with concept maps that illustrate their thoughts. Examples of concept maps in which preservice teachers reflect on the characteristics of an effective online teaching and learning environment are shown below. On the other hand, Teacher educators expressed their views on this issue in writing without using a concept map.

Sample Concept Map-1 (PSTs-7, Science Education) This concept map illustrates the characteristics of an effective online learning and teaching environment. The central node is 'ETKİLİ BİR ONLINE ÖĞRENME-ÖĞRETME ORTAMININ ÖZELLİKLERİ'. It branches into several categories: 'Communicate effectively' (Doğru ve Etkili İletişim Kurmak), 'Characteristics of effective online learning & teaching environment', 'Effective usage of teaching tools', 'Quality of curriculum' (Öğretim Programının Niteliği), 'Well prepared lesson plan' (Hazır Bir Ders Planı), 'Suitable learning environment', 'Evaluation of the achievement' (Süreç Sonunda Başarının Çeşitli Yönlere Değerlendirilmesi), 'Instructor and student qualifications' (Öğretmenin Nitelikleri ve Öğrenci Özellikleri), and 'Student participation' (Öğrenci Katılımı). The map uses green and red boxes to categorize these features.	Sample Concept Map-2 (PSTs-22, Language Teaching) This concept map focuses on the 'Etkili online öğrenme ortamı' (Effective online learning environment). The central node is 'Etkili online öğrenme ortamı'. It branches into several categories: 'Supporting users technically' (Kullanıcıları teknik açıdan destekleyici), 'Guiding the student to research' (Öğrenciyi araştırmaya sevk edici), 'Bireysel farklılıkları göz önünde bulunduran' (Considering individual differences), 'Esnek' (Flexible), 'İmkanlara göre adaleti sağlay' (Providing justice), 'Öğrenci katılımını arttıran' (Increasing student participation), 'Motivasyonu arttıran' (Increasing motivation), and 'Öğrenciye araştırma sevk edici' (Guiding the student to research). The map uses blue boxes to categorize these features.
Sample Concept Map-2 (PSTs-19, Language Teaching)	Sample Concept Map-2 (PSTs-14, Maths Teaching)

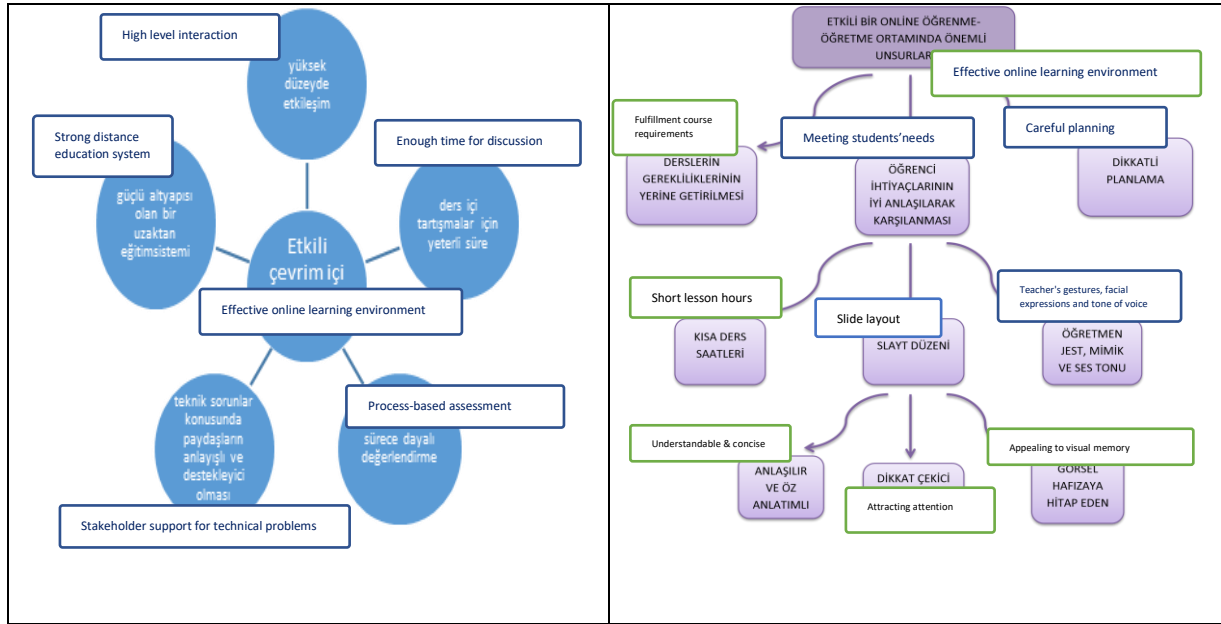


Figure 1. Examples of Concept Maps Created by PSTs.

When the concept maps are examined, although the features of an effective online learning environment are common across the views of preservice teachers studying in different fields, the features that preservice teachers identified as effective in an online learning environment were also evident across the different forms of concept maps. For example, a candidate from the science field included multifaceted features such as the nature of the program, effective communication, didactic qualities, suitability of the learning environment, evaluation of success, well-prepared lesson plan, student participation, feedback and correction, and effective use of tools among the features of an effective online learning environment in the concept map he prepared. On the other hand, a preservice teacher from the language field highlighted interaction features, sufficient time, knowledge of technical issues, strong system expectations, and a process-based evaluation in the concept map he prepared. The concept maps prepared by preservice teachers show that the features of an effective online environment can differ across fields. Some quotes from both groups of participants in writing are given below.

(...) Using appropriate activities that will contribute to student motivation, designing individual assignments as much as possible during the evaluation process, the instructor's professional/personal self-development, emphasizing in-class interaction and communication, using appropriate feedback processes, and most importantly, including designs that will increase students' internal motivation will be important for an effective online learning environment. (PSTs-4)

Elements such as technological infrastructure, technical support, and online education support that faculty members and students will need in an online education environment are important for an effective online learning environment. (PSTs-5)

On the other hand, teacher educators did not create concept maps to express their views on the characteristics of an effective online teaching and learning environment; instead, they conveyed their views in writing:

Content, teacher, learning experiences, online teaching materials, online assessment, and evaluation tools. (Teacher Educator-8)

Usability and audio-visual elements... There should also be a rich learning environment, resources, videos, and materials available for students to use (...) (Teacher Educator-1)

When the statements reflecting the views of teacher educators were examined, it was observed that, unlike preservice teachers, they focused on teaching materials and assessment processes.

Another question posed to preservice teachers and teacher educators in the study was, “How would you define an online learning environment using an adjective or concept? Why?” The answers to this question were also quite interesting in terms of reflecting the perspectives of these two different participant groups regarding online learning environments.

Comfort... because I designed my room as my comfort zone, where all the conditions are provided for me to have an efficient lesson. (PSTs-15)

Alternative (...) because I think that the online learning environment is an alternative that can be seen as an opportunity for every situation, as it offers a learning environment that eliminates time and space restrictions for highly motivated students. For everyone who wants to improve in different areas, learning opportunities can be provided within the scope of lifelong learning in online environments. (PSTs-1)

Practical (...) because it does not require a specific place for the lesson, and the learning environment can be easily reached. It does not cause physical fatigue and allows the lesson to be revisited. (PSTs-5)

Opportunity... because conditions and technology change and develop every day. (...) Making good use of these processes and the online learning environment can be considered as an opportunity. (PSTs-7)

On the other hand, teacher educators also shared their views from their perspectives using concepts similar to those of preservice teachers.

Opportunity (...) because the world we live in and technology is changing every day, and using a learning-teaching environment where technology will be effective will introduce us to different innovations (Teacher Educator-4)

Alternative (...) because I think online learning environments create an alternative that offers opportunities in every situation (...) (Teacher Educator-2)

4.2. Positive Characteristics of the Online Learning Environment

Among the features that preservice teachers liked most about the online learning environment, the most emphasized were spatial flexibility, time-saving, the opportunity to rewatch the lesson, and the acquisition of self-control. It was observed that preservice teachers' comments highlighted the advantages of online learning, yet they also emphasized their preference for face-to-face learning. In this context, an example of discourse reflecting the preservice teachers' views is given below.

Space flexibility for class participation

There is not a single aspect of online learning that I like very much, but it provides some opportunities. I can participate in the lesson wherever I want, regardless of the location. (PSTs-14).

Permanent and effective learning

(...) I achieved more lasting, effective learning than in face-to-face education. I think I gained much more productivity from the lessons... (PsT-35).

The features that stand out in teacher educators' views are the effective and efficient use of time, fast sharing of course materials with students, ease of access to the materials when desired, a quick and effective feedback process, and opportunities for spatial differences. Examples of statements reflecting the views of teacher educators emphasizing these features are given below under several related themes:

Time usage effectively

As a science educator, I find face-to-face instruction more efficient for the course's practical dimensions and activities. However, online learning has benefits, especially in eliminating restrictions on space and time. (Teacher Educator-7)

Fast sharing of course materials and ease of access

(...) The features I like about online teaching are that it provides a fast way to share materials, examples, and videos related to the subject, and that it allows students to access the content later. (Teacher Educator-1)

The online teaching process is quite effective for students who use technology and develop themselves accordingly. During this process, the fact that I mainly worked on technology due to my branch helped me create many opportunities for them, and students could use digital tools effectively. Another contribution was allowing us to provide feedback and corrections quickly and effectively. (Teacher Educator-2)

4.3. Negative Characteristics of the Online Learning Environment

Preservice teachers and teacher educators have also expressed their views on aspects of the online learning environment they dislike. The striking points in the responses given by the PSTs to this question are provided below under several themes:

Lack of socialization

We are far from socializing in online learning (...) I miss the campus environment (...) (PSTs-10)

Difficulty focusing

(...) I have not learned completely, and I have difficulty focusing. It is like I understood during the lesson, but then I forget (...) (PSTs-23)

Homework overload

Homework overload adversely affected my performance (...) (PSTs-7)

These views of the PSTs show that the elements they dislike or struggle with in online learning environments can be grouped into several subheadings. While some candidates pointed out the problems related to the course and evaluation, many emphasized the affective and social elements. This finding shows that preservice teachers have the greatest issues with online learning in this regard. A small number of preservice teachers expressed technical and physical problems.

Within the scope of this question, teacher educators shared similar views with preservice teachers. In their opinions, teacher educators particularly emphasized the limitations of communication and interaction between students, the need for time in the course preparation process, limitations in teaching methods, and inadequacies in technical issues. On the other hand, a teacher educator pointed out the difficulty of following student work in an online

learning environment. Examples of statements reflecting teacher educators' responses to this question are provided below under the defined themes.

Communication problems

I think that communication and interaction are more challenging due to the unpredictability of distracting factors in the online learning environment (...) (Teacher Educator-1)

Despite the students' participation in the course, I think that the interaction is not as in face-to-face education (...) (Teacher Educator-3)

From my perspective, apart from course preparations, the evaluation of homework and the lack of interaction between students can be listed among the restrictive aspects of the online teaching-learning process (Teacher Educator-6)

Problems in ensuring student interest and motivation

Not being able to sustain the effect on students' emotional learning dimension sufficiently during the teaching process and not being able to benefit from sufficient active teaching techniques (...) (Teacher Educator-4)

Not being able to ensure that all students participate in the course during the learning process (...) (Teacher Educator-7)

Evaluation problems of learning

Students' self-evaluation in the online learning process, I think their evaluation is very important; for example, designing their research can be very instructive for them, but such studies are time-consuming in the evaluation process (Teacher Educator-5)

Although online courses seem useful for subjects and fields with intense theoretical content, it is not easy to follow students' learning processes in courses with a practical dimension. (Teacher Educator-4)

Another noteworthy finding in the opinions of teacher educators in this study was their search for innovation and change in teaching strategies for online teaching. Some examples of discourses reflecting their views in this context are given below:

In the online environment, I focused on creating thought-provoking activities to help students develop their imagination and critical thinking skills. I created a more discussion-oriented environment, but it was time-consuming. In terms of using time effectively, I mostly used techniques such as narration, animation, and short films. (Teacher Educator-3)

I prepared various videos and course content for the online environment. I used small assignments and thinking questions at the end of the course (...) (TE-4)

I kept the interaction active by asking more questions in the course. (Teacher Educator-5)

Thinking about the materials I could use to support online teaching and create a more meaningful learning environment led me to develop and design a series of digital teaching materials that I could use again and again in the future. (Teacher Educator-7).

These views show that teacher educators tend to make different preparations for the course, especially the materials to be used, based on their opinions of the online learning environment, and they strive to make the online learning environment effective for student learning..

5. DISCUSSION AND CONCLUSION

5.1. Discussion

As previously detailed in the study, teacher educators and preservice teachers emphasized similar views on the online learning environment but also reported different perspectives based on their own experiences. Table 2 summarizes preservice teachers' and teacher educators' main views on an effective online learning environment.

Table 2. Evaluation of the Effective Online Learning Environment by Preservice Teachers and Teacher Educators

Themes	PSTs	Teacher Educators
Characteristics of the online learning environment	• flexibility and savings in terms of time • the opportunity to re-watch and re-listen to the lesson • acquiring self-control • spatial comfort • effective use of technology	• effective and efficient use of time • rapid sharing of course materials • fast and effective feedback process • provision of a different learning setting • flexibility in terms of time and space • encouraging experimentation and learning with technological approaches
Negative characteristics of the online learning environment	• inadequate communication with instructors • assessment issues • inadequate reflection of emotions and knowledge • inability to adapt to the lesson and the setting • decreased willingness to attend class • predominantly narrative-based processing of lessons • exhaustive homework • lack of socialization and communication with friends • being forced to look at the screen constantly • technical issues	• difficulty in enhancing communication and interaction among students • extra time needed for lesson preparation • perceived limitations about teaching methods and assessment techniques thereof • adapting the learning process to the online setting • ensuring the continuity of student motivation
Positive characteristics of the online learning environment	• encourage learning • facilitate effective interaction and active communication with the student group • designed vis-a-vis the individual differences of the students • motivating • incorporate visual materials to a higher degree	• motivating • designed in line with learning principles • increased focus on the self-assessment process • technological and supportive assistance • active participation

A general review of the most-liked qualities of online learning, as emphasized by both PSTs and teacher educators, showed that they agreed on many common points. However, participants mostly referred to the physical and temporal elements enabled by online learning, as well as features related to the cognitive, social, or emotional dimensions of learning. This result shows that implicit elements should be taken into account in the design of online learning environments and examined in detail. Another result of the study was that PSTs and teacher

educators shared their perspectives on the negative or challenging aspects of the online learning environment, based on their experiences. Although communication, interaction, and technical problems were among the issues mentioned in this context for both participant groups, preservice teachers emphasized reluctance to participate in the course, problems related to the emotional and social dimensions, and workload. In their opinions, the teacher educators reported a need for additional time due to differences in their experiences with course preparation. Another result of the study, as shown in the table, PSTs mainly emphasized features such as a stimulating environment, effective communication and interaction, consideration of individual differences, and motivation as their expectations for the online teaching-learning environment. In contrast, teacher educators emphasized the importance of course design and technical support.

Other studies in the literature report results similar to those of this study. In recent years, researchers have conducted studies examining the online learning experiences of educational stakeholders across various educational systems. One key finding of this research was that teacher educators and preservice teachers across various fields evaluated the online learning environment at specific points relevant to their fields. For example, some teacher educators expressed the limitations of online learning in language teaching, especially in the speaking dimension. Similarly, the literature reports that online language teaching requires different skills and competencies than online teaching in other courses (e.g., Hampel and Stickler, 2005; cited in Compton, 2009; Mohafa & George, 2023). For example, it is stated that the online language-learning context requires new teaching approaches and skills distinct from those used in face-to-face teaching. In this study, preservice teachers and teacher educators identified various, yet multifaceted, features for an effective online learning environment. Interaction and communication were frequently emphasized among these features. Similarly, communication and interaction were emphasized as important elements in many studies on online learning. Preservice teachers have various opportunities to interact with their peers on campus (Maré & Teedzwi Mutezo, 2021). The online environment, unlike the campus environment, has some limitations. In a study conducted by Vincent et al. (2016), a positive relationship was reported between the time an instructor spent in discussion forums and the time preservice teachers spent in the classroom. In addition, the way instructors interacted with students was positively correlated with the number of responses students gave to the instructor.

In another study, Rapanta et al. (2020) investigated the role of online teaching and learning in designing better learning experiences, drawing on pedagogical content knowledge that includes digital technologies and creates diverse learning environments. Berge (1995) reported the importance of pedagogical, social, managerial, and technical skills in online learning. On the other hand, Silva Quiroz (2010) argued that having only pedagogical, social, technical, and administrative competencies does not guarantee being a good virtual teacher. It is important to receive training in this regard. All of these indicate that online teachers' technology, pedagogy, and evaluation skills should be structured holistically, as Compton (2009) stated.

In the current study, preservice teachers and teacher educators shared views indicating that motivation is also important in the online environment. Similar points stated in the literature on this subject are noteworthy. For example, Ramírez-Hurtado et al. (2021) reported that one of the critical elements in online learning is maintaining student motivation. On the other hand, some results of student-focused studies on online learning in the relevant literature also provide critical indicators for online learning. For example, Sharma et al. (2020) emphasized the importance of student satisfaction in the effective implementation of online learning. In this context, a web-based cross-sectional survey was conducted with 434 undergraduate and graduate students from various academic programs who participated in online courses initiated

during the COVID-19 pandemic. A 31-question survey was applied to the students, including four primary areas of student satisfaction (learner areas, technological features, instructor characteristics, and course management and coordination). The study results showed that more than half of the students (53.5%) were satisfied with online learning, and 29.7% gave a neutral opinion. This result also indicates that there are aspects that students like and are uncertain about, as in the current study on online learning. In another study, Chen et al. (2021) investigated students' experiences, needs, expectations, and difficulties in an online learning environment. The study's data were collected from students at a Business School via the 'Student Online Learning Experience Survey'. The participants' written comments were also analyzed in the study. The study results showed that students' satisfaction was highly correlated with the content coverage and interaction included in online learning technologies. This result again reveals that interaction and course content are important elements for students in online learning. Shaid et al. (2021) also reported that students had positive perceptions of online learning and accepted it as a new learning system. In another study by Kulal and Naya (2020), the perceptions of teachers and students regarding online courses were analyzed. The study showed that students were satisfied with online courses and received sufficient teacher support. However, students in the study highlighted several technical problems associated with online education. Similarly, technical problems were emphasized in the current study's views of preservice teachers and educators. In online learning, students' ability to use various technologies requires easy access to relevant devices or a reliable internet connection. As stated in the study by Hollister et al. (2022), technical barriers, such as the lack of this, can create problems.

Another detail emerged regarding the evaluation process in online learning from the students' views in the current study. Both preservice teachers and teacher educators expressed their opinions and expectations, emphasizing the importance of feedback in the online learning environment. As noted in various studies, providing effective feedback for student development and academic performance in the online environment (Bao et al., 2019) is another critical point. Steele et al. (2023) conducted a comprehensive study to determine the teaching components or strategies that significantly impact student learning in the online classroom. For this purpose, a survey was administered to 413 faculty members and 2,386 students. The research results showed significant differences in perceptions between faculty members and students. In addition, the study participants stated that faculty interaction and feedback are the most valuable components of online learning. In addition to these findings, the participants highlighted the limitations of the emotional and social aspects of the online environment.

Another element of critical importance in the effectiveness of online learning is the role of the instructor. In this study, preservice teachers and teacher educators pointed out the role of the instructor in an effective online learning environment. In addition, the views they reflected in this direction can be seen in the concept maps they created. Instructors have many roles in an online learning environment, such as motivating students, fostering effective communication, and providing effective feedback. An online teacher or instructor can be defined as a person who supports learning processes through direct interaction with students (Denis et al., 2004; Sulcic & Sulcic, 2007). As in a face-to-face learning environment, instructors take on various roles in online learning. Sulcic and Sulcic (2007) stated that online instructors have different roles in improving the quality of e-learning and the importance of the skills required to fulfill these roles successfully. In a study conducted by Gómez-Rey et al. (2018), the roles of online instructors were investigated. This mixed-methods study, conducted in Spain, aimed to determine the key teaching roles and outcomes from students' perspectives in 21st-century asynchronous learning environments. Six roles were identified in the study: pedagogical, course designer, social, life skills developer, technical, and managerial roles. The research results

showed that students mostly find the pedagogical and designer roles valuable for their learning. In another study by Sharen and Heather (2023), how faculty members conceptualize their teaching roles in online teaching was investigated, and it was concluded that faculty members define their roles in this context as content creators and presenters to students, curriculum designers, evaluators, and facilitators. In summary, the teacher's role in the virtual environment is critical to the success of student-centered educational activities. It is also clear that another important aspect of the quality e-learning process is efficient and high-quality student support (Sulcic & Sulcic, 2007).

5.2. Conclusion

Considering the increasing prevalence of courses that combine online education with face-to-face instruction in higher education institutions (Sun & Chen, 2016), the characteristics and design of online education environments are also becoming a topic of interest for researchers. Therefore, the online learning environment, features, and design have been the subject of considerable research in recent years. For example, in a study by El-Sabagh (2021), the aim was to develop an adaptable e-learning environment tailored to students' learning styles and to examine the effect of this feature on students' participation. The findings obtained in the study conducted by Quadri and Muibi (2024) also indicated the importance of the three components, namely online course design, online facilitation, and online assessment, on students' learning effectiveness in an online learning environment. Another study by Van Wart et al. (2020) aimed to identify the critical factors in creating a high-quality online learning experience from students' perspectives in higher education. Nine hundred eighty-seven higher education students were included in the study, and an exploratory factor analysis was conducted based on the data. According to the research results, seven factors (Basic Online Modality, Instructional Support, Instructional Presence, Cognitive Presence, Online Social Comfort, Online Interactive Modality, and Social Presence) were determined to be significant and reliable.

As seen in the research examples, the features and design of the online learning environment have been the subject of considerable research in recent years. On the other hand, as many studies on online learning environments (e.g., Reyes-Fournier et al. 2020) have argued, the effectiveness of online teaching is not well defined in the relevant literature. This finding points to the importance and necessity of conducting studies in this direction in the literature. The results of this study, which focuses on describing the views of preservice teachers and teacher educators with online learning experience in an effective online learning environment, are expected to contribute to the literature in this context. Although there are various studies on the subject, those that present a picture of different experiences across different education systems and their outcomes can also be compared regarding the remarkable elements they achieve. On the other hand, when the results of this study are evaluated in the context of teacher education, they provide crucial insights for teacher educators on how to make online learning environments more effective and design more effective online learning processes in teacher education programs. As Zeichner (2008) suggested, reflecting on one's own experiences should be the starting point for developing one's understanding of teaching. Based on the results of this research, which reflect the experiences and thoughts of preservice teachers and teacher educators, there is a need to conduct new research that describes an effective online learning and teaching environment and anticipates a multifaceted examination of the subject. Research to be conducted to design more effective learning and teaching activities regarding online learning environments (Alsayer, 2023; Cho et al., 2015) will contribute in this sense. In addition, designing comparative studies that also will reflect the views and experiences of stakeholders with online learning experiences in different systems on an effective online learning environment will also contribute to the literature on this subject.

In sum, in the context of teacher education, although studies contribute to the instructional design of online teacher education programs (e.g., Wang & Ko, 2025), research on this specific issue can also be diversified. As a result, this study provides remarkable insights into students' and faculty members' expectations and experiences with online education, as discussed in the earlier section. However, this study was conducted with a limited sample, and some indicators pointed out by the participants were described. With new studies to be conducted, it may be possible to examine the subject in a multifaceted and comprehensive manner and to conduct research based on a large sample of participants. In this way, a rich and detailed information scheme can be revealed to use online learning environments effectively.

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Appendix 1. Question Form for Preservice Teachers and Teacher Educators

Question Form for Preservice Teachers	Question Form for Teachers and Teacher Educators
Department/Major: Questions 1. Did you enjoy online teaching? What were your favorite features of the online learning environment? Please specify. 2. What were your least favorite or most challenging aspects of the online learning environment? Please specify. 3. What are your expectations from the instructor in the online learning environment? Were these expectations met in the online learning environment? 4. What are your opinions on communication and interaction with your classmates in the online learning environment? (What are your positive/negative opinions or suggestions? Please specify.) 5. What are your opinions on homework, activities, and assessment processes in the online learning environment? 6. Did your study strategies change with the online learning/teaching process? If yes, give an example. 7. In your opinion, what features should an effective online learning-teaching environment include? State your views by drawing a concept map. (You can also draw your map on a computer; if you prefer not to use a map, please state it in writing.) 8. If you had to describe the online learning environment with an adjective or a concept, what would that adjective or concept be for you? First state the concept, then the reason. 9. If you were to evaluate the online teaching process: (If you were to give a score from 1 to 10, what would that score be? Why?) a) From the perspective of your own learning: b) From the perspective of the teaching process:	Department/Major:... Your teaching experience (in years): Questions 1. Did you enjoy online teaching? What were your favorite features of the online learning environment? Please specify. 2. What were your least favorite or most challenging aspects of the online learning environment? Please specify. 3. What are your expectations for students in the online learning environment? Were these expectations met in the online learning environment? 4. What are your opinions on communication and interaction with students in the online learning environment? (What are your positive/negative opinions or suggestions? Please specify.) 5. What are your opinions on homework, activities, and assessment processes in the online learning environment? 6. Have there been any changes in your teaching strategies with the online learning/teaching process? If yes, please give an example. 7. In your opinion, what features should an effective online learning-teaching environment include? State your views by drawing a concept map. (You can also draw your map on a computer; if you prefer not to use a map, please state it in writing.) 8. If you had to describe the online learning environment with an adjective or a concept, what would that adjective or concept be for you? First state the concept, then the reason. 9. If you were to evaluate the online teaching process: (If you were to give a score from 1 to 10, what would that score be? Why?) a) From the perspective of your own teaching: b) From the perspective of the students' learning process: