INVESTIGATING PRESERVICE ENGLISH LANGUAGE TEACHERS' LEVEL OF ONLINE LEARNING BARRIERS

INVESTIGANDO O NÍVEL DE BARREIRAS DE APRENDIZAGEM ONLINE DOS PROFESSORES DE LÍNGUA INGLESA EM SERVIÇO

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Abstract: *Although online learning could be perceived as a choice, it can become a necessity in time. This is the reason why teachers should also learn and practice online learning environments. Teaching English is already not easy because the use of the native language is minimal, and doing so online can be even more challenging. The aim of this study is to determine the levels of barriers to online learning among preservice English teachers. The Scale of Student Barriers Online Learning by Muilenburg and Berge (2005), adapted to the Turkish language and culture by Horzum et. al. (2017) was used in the study. 310 preservice English teachers participated in the study. Sub-factor averages, factor correlations were analyzed and diagnostic statistics about the study group were included. In the comparison of quantitative data, the t-test was used for variables with two sublevels and one-way ANOVA was used for variables with more than two sublevels. When the ANOVA test revealed a difference, Post-Hoc tests were used to determine the pairwise differences. The study concluded that the barrier factors that learners encounter in online learning environments are caused by the perceived structure, lack of interaction, and low levels of readiness for technology use.*

Keywords: *Online learning. English language teaching. teacher training*

Resumo: *Embora o ensino online possa ser visto como uma opção, com o tempo pode tornar-se uma necessidade. É por isso que os professores também devem aprender e praticar ambientes de ensino online. Ensinar inglês já não é fácil, porque o uso da língua nativa é mínimo, e fazê-lo online pode ser ainda mais desafiante. O objetivo deste estudo é determinar os níveis de barreiras ao ensino online entre professores de inglês em formação. A Escala de Barreiras dos Alunos ao Ensino Online, de Muilenburg e Berge (2005), adaptada para a língua e cultura turcas por Horzum et. al. (2017), foi utilizada no estudo. 310 professores de inglês em formação participaram do estudo. As médias dos subfatores e as correlações dos fatores foram analisadas e estatísticas diagnósticas sobre o grupo de estudo foram incluídas. Na comparação dos dados quantitativos, o teste t foi utilizado para variáveis com dois subníveis e a ANOVA unidirecional foi utilizada para variáveis com mais de dois subníveis. Quando o teste ANOVA revelou uma diferença, os testes Post-Hoc foram utilizados para determinar as diferenças entre pares. O estudo concluiu que os fatores de barreira que os alunos encontram em ambientes de aprendizagem online são causados pela estrutura percebida, falta de interação e baixos níveis de preparação para o uso da tecnologia.*

Palavras-chave: *Aprendizagem online. ensino da língua inglesa. formação de professores*

Introduction

Technology has developed so fast in recent years that it has become challenging to keep up with it, such as Web 2.0 tools, metaverse, blockchain, non-fungible tokens, and the most recent artificial intelligence tools. Thus, integrating technology into education has transformed the field of English Language Teaching (ELT), leading to significant shifts in pedagogical approaches, teacher training, and classroom practices. As new technologies change the way we learn, teachers need to understand how to use them in a way that is both productive and keeps the integrity of the teaching process while enhancing student learning.

Learning technologies have always had a significant role in ELT, moving from computer-assisted Language Learning (CALL) to integrating Artificial Intelligence (AI) and mobile learning. Bax (2003) presents three phases of CALL: Behaviorist CALL, Communicative CALL, and Integrative CALL. Behaviorist CALL (1970s-1980s) is defined as being based on repetition and drilling. Integration and interaction were key in Communicative CALL (1980s-1990s). Lastly, Integrative CALL (2000s-present) integrates multimedia and internet-based learning for a more effective learning experience. The role of LT has changed more with the emergence of Mobile-Assisted Language Learning (MALL) (Brown & Green, 2010; Gooding et al., 2013; Liu et al., 2013), and the role of gamification in language learning also emerged (Godwin-Jones, 2017).

Using AI, augmented and virtual reality, and learning management systems (LMS) are the tools that redefine ELT methodologies. Higher expectations and challenges have been placed on teaching strategies' adaptability, interactivity, and convenience due to technology and education's ongoing and profound integration. Higher education institutions and educational technology organizations have responded by introducing many Learning Management Systems (LMSs) as supplemental teaching aids, expanding the variety and depth of options accessible to teachers and students (Wang et al., 2023). This online learning tool has emerged with its benefits and challenges for students and teachers.

Online learning has played an important role in the post-pandemic era. It has become an alternative for personal learning (such as online courses) and schools. During the pandemic, many learners continued their education online, and in the post-pandemic period, teachers may continue to use the LMS systems for blended learning. Increasing the availability of learning opportunities for students who are unable or unwilling to attend traditional in-person offerings, creating and distributing educational materials more economically, and/or giving students access to qualified teachers in locations where they are not available are some of the opportunities that online learning offers (Means et al., 2013). Also, it can provide diverse learning materials such as multimedia content (e.g., videos, audio, interactive exercises, etc.). The study of Yan et al. (2024) also highlights that online teaching presents many benefits for learners, teachers and parents. The participants of the study were ESL English teachers and the study focused on the experienced benefits and obstacles. The participants stated that online learning environments can enhance personalized learning environments.

Despite the benefits of online learning, it also comes with some challenges. These challenges include poor internet connectivity, a shortage of suitable equipment, and low levels of digital literacy among teachers and students. Moreover, online learning may cause pedagogical problems such as insufficient instructional design, lack of interaction, and difficulty assessing student progress (Bozkurt & Sharma, 2021). Determining the online learning barriers can help improve education. This is also the suggestion of the study Phulpoto et al.(2024), which was carried out by using qualitative methods with nine participants. The study makes recommendations that encompass investing in technical infrastructure, engaging with policymakers and developers, and prioritizing technology integration at various levels based on the requirements of the contemporary world. These recommendations aim to enhance inclusive and high-quality education by leveraging technology to achieve better outcomes. By overcoming these obstacles, colleges may facilitate universal educational access and empower students in the digital era. They conclude that strategic investments and collaborative initiatives are essential for promoting educational fairness and lifelong learning. Yan et al. (2024) also found that some challenges faced during online learning environments can be supported by improving technical support, motivation, interaction and engaging activities during teaching English (Taghizadeh & Basirat, 2022).

Since online learning is positioned at the center of education, it is significant to explore online learning barriers for learners. Learning a foreign language is not an easy process, and it may become more complicated when the learners are challenged by online learning. Therefore, exploring online learning barriers of English Language Teaching (ELT) pre-service teachers is important because they represent the next generation of educators who must use and integrate digital tools effectively in their instructional practices. Addressing these challenges is essential to guide ELT pre-service teachers in overcoming them and feeling ready to integrate technology-enhanced language instruction. Thus, this study aims to determine English teacher candidates' barriers to online learning.

Online learning barriers

Online learning may be seen unfavorably by students, despite its potential advantages. Some students may exhibit low motivation (Maltby & Whittle, 2000), drop out of the course (Carr, 2000), and have lower levels of student satisfaction (Kenny, 2003). Gender, age, ethnicity, aptitude, and trust in online learning technology, together with the type of learning institution from which the students take the courses, are the elements that Muilenburg and Berge (2005) characterize as influencing students' perceived online learning challenges in the literature. They also include whether students faced discrimination, how much they enjoyed learning in the online classroom, the number of online courses they completed, the number who dropped out of the course, and whether they were likely to take another online course in the future. Muilenburg and Berge (2005) identified eight factors that influence the online learning experience in their study with 1056 participants: learner motivation, academic skills, technical skills, social interaction, administrative issues, time and support for studies, Internet costs and access, and technical issues (Tagizadeh & Basirat, 2022; Yan et al., 2024. They found independent variables, such as gender, age, ethnicity, type of learning institution, self-rating of online learning skills, online learning effectiveness, online learning enjoyment, discrimination in traditional classes, and the number of completed online courses, that had a significant impact on students' assessments of these barrier factors. Prior to the pandemic, these variables were identified as influencing learners' obstacles to online learning. The fact that those people volunteered in their classes sets them apart from the participants in the pandemic study. However, every student had to experience online learning due to the pandemic lockdown. As a result, everyone involved—teachers, students, and legislators—had to adapt to the new learning environment (Gonzalez et al., 2020).

Furthermore, gender differences may also affect online learning (Rodriguez & Meseguer-Artola, 2021). For example, Greier et al. (2022) conducted a study on gender differences in perceptions and attitudes of online learning during the pandemic. They found that university students were poorly prepared for the challenges of online learning. Additionally, the findings revealed that male students rated their workload as less than that of female students. Thus, female students complained more because they had more difficulty using software programs and accessing study-relevant literature. Muflih et al. (2021) conducted a study with students in health professional education on their level of online learning barriers. The study revealed that participants demonstrated a moderate level of online learning barriers, and that their gender and other demographic information (e.g., major, living area) had an impact on their level of online learning barriers.

In the post-pandemic period, considering possible disasters and future epidemics, online learning continues to be an important option. In this regard, it is necessary to examine the difficulties encountered by teacher candidates in online learning processes in the field of English Language Teaching (ELT), as these individuals are expected to develop the skills to effectively integrate digital resources into their teaching methods. Although digital learning environments offer various advantages such as accessibility, flexibility, and interactive content, teacher candidates may face certain challenges during pedagogical applications. Thus, since English teachers already face challenges in teaching English, especially when learners are resistant to learning a new language, technological challenges can make the teaching process harder for teachers. Technology plays a crucial role in people's lives and education. Especially the new generation, who are often referred to as digital natives, are exposed to technology in every aspect of their lives. Considering the new

teaching environment presented by the 21st century, preservice ELT teachers should be aware of the challenges associated with online learning in order to successfully integrate technology into their teaching processes and effectively motivate and support students in online learning environments.

Investigating the perceived challenges faced by preservice ELT teachers in online learning may contribute to the enhancement of educational issues, including the improvement of student experiences, the mitigation of digital inequality, the development of teacher competencies, and the more deliberate execution of program development processes. During online learning, preservice teachers can experience the important components of online learning, such as student-centered teaching techniques, the effective use of online resources, and digital classroom management. This experience can pave the way for their teaching. Nevertheless, these digital literacy skills cannot be developed by preservice ELT instructors if they are not provided with high levels of digital literacy and if they lack educational opportunities to engage in online learning methods. When there is a lack of interaction, learners often experience difficulties during online learning. Additionally, technical difficulties also create challenges during the online learning process. Thus, investigating the online learning barriers of preservice ELT teachers can be a step toward creating teacher training programs that emphasize digital literacy, creative teaching strategies, and equal opportunities, if all these challenges are acknowledged. Future English teachers will be more equipped to handle the changes in the digital education landscape in this way.

In conclusion, it is critical to understand the difficulties that arise in online learning processes when it comes to English language instruction in order to improve teacher competency, improve language learning opportunities, eradicate digital disparities, and create efficient teacher preparation programs. Given how important technology is to language instruction, research and policy development initiatives centered on these issues will increase the effectiveness and inclusivity of online language instruction for both instructors and learners. In light of this, the current study attempts to identify the degree of difficulty faced by prospective teachers of English in virtual learning settings.

Research Questions:

RQ1: What are English teacher candidates' levels of barriers to online learning?

RQ2: Do the barriers encountered by pre-service English teachers in online learning environments differ according to their gender?

RQ3: Do the barriers encountered by pre-service English language teachers in online learning environments differ according to their training on the use of technology in education?

RQ4: Do pre-service English teachers' barriers in online learning environments differ according to their grade levels?

RQ5: Do pre-service English teachers' barriers in online learning environments differ according to their skill levels in using Web 2.0 tools?

Methodology

Research Design

The cross-sectional survey model, a quantitative research technique, is employed in the study design (Büyüköztürk et al., 2012). This approach aims to capture a snapshot of a scenario by gathering information all at once, thereby shedding light on a situation, variable, or phenomenon. The analysis of the snapshot reveals the connections between the variables, the situation, and the phenomenon (Barış, 2015). There are two primary components to the research design. Information that is believed to have an impact on the online learning challenges of prospective English teachers, such as gender, grade level, technological accessibility, in-service training, etc., was gathered in the first section. The Student Barriers to Online Learning Scale, which Horzum, Demir-Kaymak, and Canan-Güngören (2017) translated into Turkish, was used in the second section. The scale comprises 45 elements and six sub-factors.

Universe and Sample

The population of this study consists of English language pre-service teachers. The participants were selected via convenience sampling and criterion sampling methods (Patton, 2015). While the convenience sampling method provided ease of access to the target population, the criterion sampling method ensured that individuals with online learning experience were included in the study. In this context, data were collected from 310 (n=310) prospective English language teachers studying at Anadolu University Faculty of Education. According to Creswell (2010), the data obtained from 300 or more participants in survey studies can be said to generalize the universe.

Data Collection

This study employed the online survey method, recognized in contemporary literature as a faster, more effective, and economical approach (Arıkan, 2018). The researchers uploaded the prepared questionnaires to the online survey platform Google Forms and shared the access link with the teachers.

Data Collection Tools

Participant Demographic Information Form

To collect demographic information of the participants a Participant Information Form was created based on research objectives, namely, to gather data on gender, grade level, proficiency in computer programs and applications, skill levels in using Web 2.0 tools, and the status of training received regarding technology use in education.

Student Barriers to Online Learning Scale

The study employed the online learning barriers scale by Horzum et al. (2014). The scale is considered an assessment tool consisting of seven sub-factors and a total of 45 items. Its validity and reliability were proved by the researchers who developed the scale. The scale comprises 45 items and eight subfactors. The first factor of the scale is the 'Administrator/instructor issues (AI)' factor. This factor includes 11 items related to the barriers arising from administrators and instructors in online learning. The second factor is the 'social interactions (SI)' factor, including six items related to barriers arising from lack of social interaction in online learning. The third factor consists of six items measuring language, reading, writing and communication skills, and it was named 'academic skills (AS)'. The fourth factor consisting of six items measuring technical tools and their use in online learning was named 'technical skills (TS)', while the fifth factor containing five items addressing students' motivation and willingness in online learning was named "learner motivation (LM)". The sixth factor, which is related to online learning students' getting time and support for their studies, is named as "Time and support for studies (TS)". The seventh factor was named as 'internet access and costs (IAC)' because it contains three items that address the barriers that may arise from internet access and prices in online learning. The last factor was named as 'technical problems (TP)' since it contains three items about technical problems that may occur in online learning. The Likert-type agreement levels of the scale are expressed as 'not an obstacle' (1) to 'very strong obstacle'. In addition, Cronbach's Alpha value was calculated to measure the scale's reliability in this study. The calculated value is 0,906. This value shows that the scale has very high reliability (Tabachnick & Fidell, 2013). Therefore, the online learning student barriers scale can be expressed as a useful tool for measuring related learning barriers.

Data Analysis

The SPSS package was used to examine the data that was gathered. The results were

assessed at the 5% significance level and 95% confidence interval level. Within the parameters of the study, descriptive and inferential statistical analyses were carried out and interpreted. However, group-based variables with two sublevels were subjected to the t-test, and group-based variables with more than two sublevels were subjected to a one-way ANOVA analysis, as the data collected satisfied the normality assumption. If there was a difference in the ANOVA test, the pairwise differences were ascertained using post-hoc tests.

Results and Discussion

In this section; normality distribution of the data set, mean scores obtained from the scale, demographic findings related to the study group and findings and analyses related to the problem situation are given.

Testing Normality Distribution

Table 1. Normality Distribution and Findings Regarding the Scale

Variable	n	Min.	Max.	x̄	S.D.	Skewness	Kurtosis
Learning Barries	310	1,00	5,00	3,04	,734	-,628 ,145	,112 ,245

Source: Authors findings

Table 1 presents the arithmetic mean and standard deviation values of the scores of pre-service English language teachers from the scale of learner barriers in online learning. In order to check whether the data collected in the study showed a normal distribution, kurtosis and skewness values and histogram graphs were analyzed respectively. According to the results of the normality test, it was observed that the kurtosis and skewness values of the data set were between -1.5 and +1.5 and the histogram graphs showed a normal distribution (Tabachnick & Fidell, 2013). The score intervals of the data obtained in Likert scale type should be accepted equal and the average score interval factor should be 0.79 (Çokluk et al., 2010). To calculate the current score range, the lowest score value (1) is subtracted from the highest score value to be obtained from the scale item and this value is divided by the number of degrees of the total value. Finally, the value obtained represents the score range (Erkuş, 2012). In this context, the evaluation ranges of the related scale are shown in Table 2.

Table 2. Item Evaluation Intervals of the Scale of Learner Barriers in Online Learningı

Levels	Item Value Ranges
1 – Very Low	1,00 – 1,79
2 – Low	1,80 – 2,59
3 – Moderate	2,60 – 3,39
4 - High	3,40 – 4,19
5 – Very High	4,20 – 5,00

Source: Authors findings

According to Table 2, the mean of the level of online learning barriers of pre-service English teachers is 3.04. This value shows that their level of barriers in online learning is in the 'medium' category. In addition, Cronbach's Alpha value was calculated to measure the reliability of the scale used in the study. The calculated value is 0,906. This value shows that the scale has very high reliability (Tabachnick & Fidell, 2013).

Findings Related to the Sample

Under this heading, the frequency and percentage distributions of the data related to the sample collected through the participant information form are shown in tables.

The distribution of the sample is mentioned in the tables below.

Table 3. Gender

Variable	Groups	n	%
	Female	211	68,1
Gender	Male	99	31,9
	Total	310	100

Source: Authors findings

It is seen that 68.1% of the study group consists of female participants and 31.9% of the study group consists of male participants. It is noteworthy that female participants participated more in the study.

Table 4. Distribution of the Participants According to the Status of Receiving Training on the Use of Technology in Education

Variable	Groups	n	%
	Yes	136	43,9
Training Status	No	174	56,1
	Total	310	100

Source: Authors findings

43,9% of the pre-service English language teachers participating in the study received training on the use of technology, while 56,1% did not. Thus, the majority of the participants in the study did not receive any training on educational technologies.

Table 5. Distribution of the Participants According to Years

Variable	Groups	n	%
	1st year	128	41,3
Years	2nd year	32	10,3
	3rd year	58	18,7
	4th year	92	29,7
	Total	310	100

Source: Authors findings

It is seen that 41,3% of the pre-service English teachers participating in the study are studying at 1st grade, 10,3% at 2nd grade, 18,7% at 3rd grade and 29,7% at 4th grade level. In this context, it can be said that the group with the highest participation in the study consists of pre-service teachers studying in the 1st grade.

Table 6. Distribution of Participants According to their Web 2.0 Tools Use

Variable	Groups	f	%
	Low	75	24
Web 2.0	Moderate	113	36,6
	High	122	36,4
	Total	310	100

Source: Authors findings

The findings indicate that 24% of the pre-service teachers surveyed demonstrate a low level of proficiency in using Web 2.0 tools, while 36.6% exhibit a moderate level, and 36.4% possess a high level of proficiency. Notably, within this context, mathematics teachers' competencies in utilizing educational technologies and Web 2.0 tools are predominantly at moderate and high levels.

Findings Related to the Research Questions

Examination of Online Learning Barriers Sub-Factor Levels According to Gender
An independent samples t-test was conducted to examine the sub-factors of online learning barriers levels of pre-service English language teachers according to gender. The findings obtained are presented in Table 7.

Table 7. Analysis of Online Learning Barriers' Sub-Factor Levels by Gender

Variable	Groups	x̄	t	p	Cohen's d
AI	Female Male	3,13 2,92	1,446	0,000*	,53
SI	Female Male	3,03 3,09	1,963	0,704	
AS	Female Male	3,09 3,02	,593	0,224	
TS	Female Male	2,91 3,14	,410	0,049*	,48
LM	Female Male	2,88 3,24	,045	0,000*	,43
TSS	Female Male	3,03 3,06	,045	0,200	
IAC	Female Male	3,11 3,02	,049	0,241	
TP	Female Male	3,08 3,04	,043	0,183	

Source: Authors findings

According to the findings presented in Table 7, significant differences were observed when the sub-factors of online learning barriers were analyzed based on gender. In the Administrative Issues (AI) sub-factor, the mean barrier perception of women ($\bar{x}$ = 3.13) was higher than the mean barrier perception of men ($\bar{x}$ = 2.92), and this difference was statistically significant (t = 1.446; p = 0.000). The effect size was calculated as Cohen's d = 0.53, indicating a moderate level of differentiation. In the Technical Skills (TS) sub-factor, the average barrier perception of men ($\bar{x}$ = 3.14) was higher than the average barrier perception of women ($\bar{x}$ = 2.91), and this difference was statistically significant (t = 0.410; p = 0.049). The effect size was determined as Cohen's d = 0.48 and again a moderate

level of differentiation was observed. In the Learner Motivation (LM) sub-factor, the mean barrier perception of males (x̄ = 3.24) was significantly higher than that of females (x̄ = 2.88), and this difference was statistically significant (t = 0.045; p = 0.000). The effect size was calculated as Cohen's d = 0.43 and it can be stated that there is a moderate level of differentiation.

However, no statistically significant difference was found between genders in the sub-factors of Social Interaction (SI), Academic Skills (AB), Time and Support for Studies (TSS), Internet Access and Costs (IAC) and Technical Problems (TP) (p > 0.05). These findings show that gender has an effect on experiencing certain barriers at different levels in the online learning process, but this effect is limited in some factors. When the effect sizes are analyzed with Cohen's d values, it is understood that the differentiation is at a moderate level, and there is a significant effect especially in the factors of AC, TB and SC.

The Analysis of Online Learning Barriers Sub-Factor Levels According to the Status of Receiving Training on Technology Use

An independent samples t-test was conducted to examine whether the sub-factor levels of online learning barriers among pre-service English teachers differ based on their participation in training related to the use of technology in education. The findings obtained from the analysis are presented in Table 8.

Table 8. Findings of Online Learning Barriers' Sub-Factor Levels Based on the Status of Receiving Technology Training

Variable	Group	x̄	t		p	Cohen's d
AI	Yes No	2,83 3,27	1,446		0,000*	,53
SI	Yes No	3,03 3,09	1,963		0,704	
AS	Yes No	3,01 3,11	,593		0,224	
TS	Yes No	2,89 3,23	,410		0,049*	,48
LM	Yes No	2,88 3,24	,045		0,000*	,43
TSS	Yes No	3,03 3,09	,045		0,200	
IAC	Yes No	3,04 3,08	,045		0,183	
TP	Yes No	3,05 4,07	,044		0,184	

Source: Authors findings

Based on the findings presented in Table 8, a significant difference was observed in the sub-factors of online learning barriers across genders. In the Administrative Issues (AI) sub-factor, the average perceived barrier for women (x̄ = 3.13) was found to be higher than that for men (x̄ = 2.92), and this difference was statistically significant (t = 1.446; p = 0.000). The effect size was calculated as Cohen's d = 0.53, indicating a moderate level of difference.

For the Technical Skills (TS) sub-factor, men exhibited a higher average perceived barrier (x̄ = 3.14) compared to women (x̄ = 2.91), and this difference was also statistically significant (t = 0.410; p = 0.049). The effect size was determined as Cohen's d = 0.48, again indicating a moderate level of difference.

In the Learner Motivation (LM) sub-factor, men's average perceived barrier (x̄ = 3.24) was significantly higher than that of women (x̄ = 2.88), with the difference being statistically significant

(t = 0.045; p = 0.000). The effect size was calculated as Cohen's d = 0.43, which also suggests a moderate level of differentiation.

However, no statistically significant difference was found between genders in the sub-factors of Social Interactions (SI), Academic Skills (AS), Time and Support for Studies (TSS), Internet Access and Costs (IAC), and Technical Problems (TP) (p > 0.05). These findings suggest that gender influences the experience of certain barriers in online learning at varying levels, but its effect is limited in some factors.

When examining the effect sizes through Cohen's d values, the differentiation appears to be moderate, with a particularly notable effect in the CA, TS, and LM sub-factors.

Analysis of Online Learning Barriers' Sub-Factor Levels Based on the Status of Receiving Training on Technology Use

An independent samples t-test was conducted to investigate whether the sub-factor levels of online learning barriers among pre-service English teachers differ based on their participation in training related to the use of technology in education. The findings obtained from the analysis are presented in Table 9.

Table 9. Examination of Online Learning Barriers' Sub-Factor Levels Based on the Status of Receiving Technology Training

Variable	Group	x̄	t	p	Cohen's d
AI	Yes	2,83	1,446	0,000*	,53
	No	3,27			
SI	Yes	3,03	1,963	0,704	
	No	3,09			
AS	Yes	3,01	,593	0,224	
	No	3,11			
TS	Yes	2,89	,410	0,049*	,48
	No	3,23			
LM	Yes	2,88	,045	0,000*	,43
	No	3,24			
TSS	Yes	3,03	,045	0,200	
	No	3,09			
IAC	Yes	3,04	,045	0,183	
	No	3,08			
TP	Yes	3,05	,044	0,184	
	No	4,07			

Source: Authors findings

Table 9 reveals significant differences among groups regarding the sub-factors of online learning barriers.

In the Administrative Issues (AI) sub-factor, it was found that participants who replied "No" demonstrated a notably higher average perceived barrier (x̄ = 3.27) than those who answered "Yes" (x̄ = 2.83). The observed difference was statistically significant (p = 0.000 < 0.05), with an effect size of Cohen's d = 0.53. This result would suggest a moderate level of differentiation.

In terms of the Technical Skills (TS) sub-factor, participants who replied "No" demonstrated a notably higher average perceived barrier (x̄ = 3.23) compared to those who answered "Yes" (x̄ = 2.89), with this difference reaching statistical significance (p = 0.049). The effect size was calculated as Cohen's d = 0.48, suggesting a moderate level of differentiation.

In the Learner Motivation (LM) sub-factor, participants who answered "No" (x̄ = 3.24) indicated a greater perceived barrier than those who answered "Yes" (x̄ = 2.88). The observed difference was statistically significant (p = 0.000 < 0.05), with

an effect size of Cohen's d = 0.43, suggesting a moderate level of differentiation. There were no significant differences among groups regarding the remaining sub-factors: Social Interactions (SI), Academic Skills (AS), Time and Support for Studies (TSS), Internet Access and Costs (IAC), and Technical Problems (TP) (p > 0.05). The findings indicate that although some barrier factors differ among groups, the sub-factors of Administrative Issues (AI), Technical Skills (TS), and Learner Motivation (LM) demonstrate notably significant effects.

The effect size values indicate that the observed differences are moderate, highlighting the potential role of these specific factors in shaping the online learning experience.

The Analysis of Online Learning Barriers' Sub-Factor Levels Based on Grade Level

An ANOVA analysis was conducted to examine the sub-factor levels of online learning barriers among pre-service English teachers in relation to the school type variable in which they are employed. The findings obtained from the analysis are presented in Table 10.

Table 10. The Analysis of Online Learning Barriers' Sub-Factor Levels Based on the Grade Levels of Pre-Service English Teachers

Variable	Group	x̄	f	p	Difference
AI	1st year 2nd year 3rd year 4th year	3,08 2,96 2,82 2,94	-1,446	,150	
SI	1st year 2nd year 3rd year 4th year	2,72 2,71 2,76 2,74	1,963	,363	
AS	1st year 2nd year 3rd year 4th year	3,14 3,21 3,32 3,32	-,593	,000*	,18
TS	1st year 2nd year 3rd year 4th year	3,34 3,43 3,46 3,41	,410	,630	
LM	1st year 2nd year 3rd year 4th year	3,34 3,43 3,46 3,41	3,845	,864	
TSS	1st year 2nd year 3rd year 4th year	3,08 3,28 3,14 3,22	2,527	,000*	,47
IAC	1st year 2nd year 3rd year 4th year	3,08 3,28 3,14 3,22	2,771	,415	
TP	1st year 2nd year 3rd year 4th year	3,06 2,97 2,90 3,18	2,527	,000*	,47

Source: Authors findings

According to the analysis results presented in Table 10, the study investigated whether online learning barriers vary by grade level. The findings indicate a significant difference in the Academic Skills (AS) sub-factor across grade levels (p = 0.000). Post-hoc test results reveal that 1rst-year students perceive fewer academic skill-related barriers compared to third- and 4-year students.

Similarly, a significant difference was found in the Time and Support for Studies (TSS) sub-factor (p = 0.000), with second-year students reporting a higher perceived barrier level than students in other grade levels.

Additionally, the Technical Problems (TP) sub-factor also exhibited a significant difference (p = 0.000), where 4th-year students reported higher perceived barriers related to technical problems compared to students in other grade levels.

Across grade levels in the sub-factors of Administrative Issues (AI), Social Interactions (SI), Technical Skills (TS), Learner Motivation (LM), and Internet Access and Costs (IAC) (p > 0.05), no statistical difference was found.

The results indicate that preservice teachers from different grade levels face distinct challenges. More specifically, preservice teachers' perceptions of challenges vary based on their educational background in terms of the following areas: administrative concerns, study time, available support, and technical challenges. This finding shows how important it is to design online learning environments with students' needs in mind, considering their educational level.

The Analysis of Online Learning Barriers' Sub-Factor Levels Based on Web 2.0 Tools Usage Skill Levels

To investigate the sub-factor levels of online learning barriers among pre-service English teachers in terms of their proficiency in using Web 2.0 tools, an ANOVA analysis was performed. The results of the ANOVA analysis are presented in Table 11.

Table 11. The Analysis of Online Learning Barriers' Levels Along with Their Sub-Factors Based on Web 2.0 Tools Usage Skill Levels

Variable	Groups	x̄	F	p	Difference
AI	Low (1) Moderate (2) High (3)	3,67 3,08 2,65	1,051	,000*	1-2,1-3 2-3
SI	Low (1) Moderate (2) High (3)	3,22 2,95 2,60	1,963	,000*	1-2,1-3 2-3
AS	Low (1) Moderate (2) High (3)	3,34 2,98 2,79	,593	,000*	1-2,1-3 2-3
TS	Low (1) Moderate (2) High (3)	3,50 2,94 2,90	,810	,000*	1-2,1-3
LM	Low (1) Moderate (2) High (3)	3,38 3,09 2,86	1,856	,000*	1-2,1-3 2-3
TSS	Low (1) Moderate (2) High (3)	3,78 3,43 2,88	1,258	,000*	1-2, 2-3
IAC	Low (1) Moderate (2) High (3)	3,46 3,06 2,81	1,665	,000*	1-2,1-3 2-3

		Low (1)	3,26			1-2,1-3
TP		Moderate (2)	3,02	1,665	,000*	2-3
		High (3)	2,91			

Source: Authors findings

In Table 11, it is seen that there are statistically significant differences correlated with skill levels in using Web 2.0 tools (p < .001). Based on this result, it can be stated that participants with low proficiency in Web 2.0 tools showed the highest perceived barriers in terms of the following sub-factors: Administrative Issues (AI), Social Interactions (SI), Academic Skills (AS), and Technical Skills (TS).

Based on the post-hoc analyses (p < .05), it is seen that preservice teachers with low skill levels show a significant difference from those with moderate and high skill levels. Furthermore, participants with high skill levels experience noticeably fewer challenges compared to participants with moderate skill levels. Thus, it can be stated that as proficiency with Web 2.0 tools increases, how participants perceive the barriers lowers across various sub-factors, including Administrative Issues, Social Interactions, Academic Skills, Technical Skills, Learner Motivation, Time and Support for Studies, Internet Access and Costs, and Technical Problems (p < .001).

Table 11 also shows that Post-hoc analysis demonstrates statistically significant differences in the following subfactors: AI, SI, AS, TS, LM, IAC, and TP between individuals with low and moderate skill levels compared to those with high skill levels (p < .05).

The findings highlight the crucial role of proficiency in Web 2.0 tools in mitigating learning barriers within online learning environments. This finding highlights the importance of strengthening digital skills to enhance learning experiences.

Discussion and Conclusion

The current study examines the sub-factors that influence pre-service English teachers' perceptions of challenges during online learning. More specifically, the aim of the study is to investigate whether factors such as gender, level of technology training, grade level, and skill with Web 2.0 tools impact the online learning process in terms of the challenges they experience.

In terms of the gender variable, statistically significant differences were observed between male and female pre-service English teachers in the following sub-factors: Administrative Issues (AI), Technical Skills (TS), and Learner Motivation (LM). The analyses demonstrated that the AI was the subfactor that caused the most significant obstacles for female pre-service ELT instructors. Female participants' higher perception of barriers in the AI factor may show the impact of gender roles on the online learning process. This finding aligns with the study by Baturay and Toker (2019). They found that females are more likely to experience anxiety than males while using technology. This may suggest that gender roles can influence the way people learn. In terms of the subfactors, it was seen that male participants indicated more challenges in the TS and LM subfactors. The current study found that male preservice ELT teachers experienced more problems in the Technical Skills (TS) and Social Interaction (SI) sub-factors. This is different from what Kara and Çubukçu (2014) found. When compared to other studies in the literature, the results of this study show both similarities and differences. The fact that gender affects barriers to online learning aligns with the findings of Baturay and Toker (2019), who discovered differences in perceived obstacles based on gender. The differences between the findings of these studies and the current study, particularly in terms of the subcategories, may be attributed to sample differences. However, it can be stated that gender has an impact on online learning barriers.

Moreover, when the variable of technology training was investigated, it was found that there were significant differences in terms of the AI, TS, and LM sub-factors, considering participants with training and participants who did not receive any technological training. The results indicated that online learning was perceived as more challenging by participants who did not receive any training. This may highlight the importance of technology education in enhancing online learning. This is a similar finding with earlier research (Alqurashi, 2019). Alqurashi's study also shows that technology

training assists learners in overcoming learning challenges. The findings regarding the state of technology training align with Alqurashi's (2019) research. The current study shows that people who have had technology training report fewer problems in the Technical Skills (TS) sub-factor. It also suggests that well-organized programs can help learners overcome technical issues when learning online. Also, it was found that participants who received training in technology felt that their technical skills and motivation were less of a problem. This result may suggest that technology training can make online learning easier since they would feel less anxiety.

The analyses by grade level revealed a significant difference in the sub-factors of Academic Skills (AS), Time and Support for Studies (TSS), and Technical Problems (TP). Fewer problems were experienced by first-year participants regarding the AS sub-factor, which is likely due to the increasing standards for achieving higher grades. This finding aligns with other research indicating that senior students prioritize improving their academic performance (Kara & Çubukçu, 2014).

Furthermore, when examining the TSS and TP sub-factors, it was found that second and fourth-year preservice ELT teachers experienced more problems. This could mean that students in these years may experience more challenging schoolwork and technical issues. The results show that as students move through their studies/years, their experiences with academic workload and technical problems change. This indicates that different stages of education may need their own support systems.

Finally, participants' skill levels with Web 2.0 tools significantly influenced their perceptions of various learning barriers. More specifically, individuals who were less skilled with these tools tended to perceive larger problems in all the measured areas. This means that knowing how to use Web 2.0 tools is very important for being able to use the online learning environment well. These results align with those of Durak and Saritepeci (2018), who found that improving proficiency in using Web 2.0 tools can make digital learning environments appear less discouraging. The difference between participants with moderate and high levels of Web 2.0 proficiency indicates that as these skills improve, they make learning processes increasingly effective. This illustrates the importance of continually acquiring new skills in digital learning environments.

The results regarding how people use Web 2.0 tools are consistent with those of Durak and Saritepeci (2018). The current study demonstrates that Web 2.0 skills have an impact on all the barriers, highlighting their importance in the online learning process. This result suggests that acquiring Web 2.0 skills enhances digital literacy and facilitates learning in multiple ways. The results of this study indicate that problems with online learning environments vary from person to person. Gender, technology training status, grade level, and students' familiarity with using Web 2.0 tools are all critical factors that influence how they perceive barriers. Thus, incorporating these elements into the design of online learning environments may enhance the learning process and make it easier for students. To make online learning environments more open and effective, we need programs that help preservice English teachers improve their technology skills.

Additionally, enhancing technical support and guidance services in schools may help students become accustomed to digital learning, making the learning experience smoother and more effective. This study reveals that factors such as gender, prior technology training, grade level, and proficiency in using Web 2.0 tools can all impact the ease or difficulty of online learning. The results indicate that online learning environments should be designed with these considerations in mind to enhance their accessibility and utility. Improving skills in Web 2.0 tools is essential for breaking down barriers to online learning, highlighting the importance of schools teaching digital skills. The results are expected to lay a strong foundation for future research and provide information on how to make online learning environments more inclusive and supportive.

Implications and Suggestions

Based on what this study found and concluded, the following suggestions are made to make online learning better and make it easier for preservice English teachers to get through: Improving training that focuses on technology: To help pre-service teachers become more proficient in using technology, colleges and universities should offer comprehensive and hands-on technology training programs.

More and more schools are using Web 2.0 tools: Web 2.0 tools can help students stay interested in online learning by making it more interactive and collaborative. In this sense, it is a good idea to include classes on how to use Web 2.0 tools in the classroom in teacher training programs. To help female students feel less anxious about their abilities, schools can make learning settings more friendly. Also, male students should get more help with learning technological skills and staying motivated in online classes.

Improving Students' Digital Skills: To help students become more digitally literate, it is advised that schools add classes on digital literacy and online learning practices to their curricula. These classes would give students the skills they need to succeed in online education.

Improving Technical Support Services for Online Learning: Schools and colleges should enhance their technical support services to assist students in resolving technological issues they encounter while learning online. Because technical problems directly impact how well students perform in online classes, it is essential to minimize these issues so that students can be more engaged and successful.

Suggestions for Future Research: Further research should examine the challenges and experiences of online learners across various fields to gain a broader perspective. Long-term research that look at how online learning barriers affect academic performance are also suggested to get a better understanding of how these problems affect people over time. Finally, the current study focused on preservice ELT teachers, further studies may investigate online learner barriers of English teachers.

Conclusion

The study aimed to investigate the online learning barriers of preservice English teachers regarding variables such as gender, grade, technology instruction, and use of Web2.0 tools. Teaching English can be challenging because of the limited use of the native language. Teaching online can be more challenging if the teachers and learners are not familiar with the online learning environment. Thus, the study concluded that the perceived structure, lack of interaction, and low levels of readiness for technology use cause the barrier factors that learners encounter in online learning environments. It is recommended to enhance preservice digital skills, motivation, and academic abilities.

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