

Exploring Teacher and Student Perspectives on Secondary School Teachers' Digital Teaching Skills in Distance Education (DTSDE)¹

Ortaöğretim Öğretmenlerinin Uzaktan Eğitimde Dijital Öğretim Becerileri (UZEDÖB)'nin Öğretmen ve Öğrenci Görüşleri Açısından İncelenmesi

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Abstract

The principal objective of this study is to examine the needs of secondary school teachers in terms of digital teaching skills in distance education (DTSDE), with a particular focus on teacher and student perspectives. We carried out this phenomenological study with 12 secondary school teachers and 12 secondary school students, selected using maximum variation sampling, in Istanbul in the 2023-2024 academic year. While teachers were recruited for semi-structured interviews, we held focus group interviews with students. We used the descriptive analysis technique and expressed the findings as codes, categories, and themes. Given the European Framework for the Digital Competence of Educators (DigCompEdu), codes elicited from participants were clustered under the following categories: professional participation, digital resources, teaching-learning processes, measurement-evaluation, student empowerment, and supporting/enhancing students' digital competencies. These categories were then combined under the theme of DTSDE. According to the research results, it was seen that teachers and students expressed many opinions regarding the DTSDE needs of secondary school teachers. Upon examination of the data from the perspective of the participants, it becomes evident that a number of key codes emerge, including the view that secondary school teachers should receive in-service training for DTSDE and have the ability to select, create, and edit digital teaching content, to engage in practical activities, to facilitate student-teacher communication, to adopt robust time management skills, to adjust their tone of voice, and to prepare valid and reliable exams. We believe that our findings will considerably inform the further research and policy agendas of relevant stakeholders.

Keywords: Distance education, Digital teaching skills, Secondary school teachers, Digital competency

Özet

Bu çalışmanın temel amacı; ortaöğretim öğretmenlerinin uzaktan eğitimde dijital öğretim becerileri (UZEDÖB)'ne yönelik ihtiyaçlarının öğretmen ve öğrenci görüşleri açısından incelenmesidir. Nitel araştırma desenlerinden olgubilim desende gerçekleştirilen araştırma, 2023-2024 yılında İstanbul'da görev yapan, maksimum çeşitlilik örnekleme ile belirlenen 12 ortaöğretim öğretmeni ve öğrenim gören 12 ortaöğretim öğrencisi olmak üzere toplam 24 katılımcı ile gerçekleştirilmiştir. Yarı yapılandırılmış görüşme formu

¹ The present study is grounded in a part of the doctoral thesis of the first author under the joint advisement of the second and third authors at the Graduate School of Educational Sciences of Marmara University. A part of the research was presented at the 11th International Congress on Curriculum and Instruction (ICCI-EPOK 2023).

aracılığıyla gerçekleştirilen araştırma; öğretmenler ile görüşmeler, öğrencilerle ise odak grup görüşmeler yapılarak gerçekleştirilmiştir. Elde edilen bulgular, betimsel analiz yöntemiyle analiz edilmiş; kod, kategori ve tema şeklinde ifade edilmiştir. Katılımcılar tarafından üretilen kodlar, *DigCompEdu* dijital yeterlik çerçevesi dikkate alınarak mesleki katılım, dijital kaynaklar, öğretme öğrenme süreci, ölçme-değerlendirme, öğrenci güçlendirme, öğrencilerin dijital yeterliklerini destekleme/güçlendirme kategorileri altında gruplandırılmış ve bu kategoriler UZEDÖB teması altında birleştirilmiştir. Araştırma sonuçlarına göre öğretmenlerin ve öğrencilerin ortaöğretim öğretmenlerinin UZEDÖB ihtiyaçlarına yönelik birçok görüş belirttikleri görülmüştür. Katılımcı görüşleri açısından bakıldığında ortaöğretim öğretmenlerinin UZEDÖB'e yönelik uzaktan eğitim öğretme öğrenme süreçleri için hizmet içi eğitim almalı; dijital içerikleri seçebilmeli, oluşturabilmeli ve düzenleyebilmeli; uygulamalı etkinlik yapabilmeli; öğrenci-öğretmen iletişimini sağlayabilmeli; zaman yönetimini sağlayabilmeli; ses tonunu ayarlayabilmeli; geçerli ve güvenilir sınavlar hazırlayabilmeli vb. şeklinde kodların ön plana çıktığı görülmektedir. Çalışma kapsamında elde edilecek olan sonuçların araştırmacılara ve politika yapıcılara yol gösterici olması umulmaktadır.

Anahtar Kelimeler: Uzaktan eğitim, Dijital öğretim becerileri, Ortaöğretim öğretmenleri, Dijital yeterlik

1. Introduction

The distinct philosophical approaches and paradigms in this current era have reshaped the structure of knowledge. These transformations, coupled with the evolving demands of individuals, have inevitably brought education (i.e., learning-teaching processes and teacher-learner relations) into focus once again. In particular, the pandemic has accelerated the widespread adoption of distance education worldwide. Taşkan (2021) argues that pandemic-driven necessities, technological advancements, and the diversification of learning processes have led to a marked preference for distance education applications.

Distance education leverages contemporary technologies to support learners, teachers, and learning materials in reaching their full potential (Bozkurt, 2017). Covering all curricula, it differs fundamentally from traditional education methods, incorporating distinct approaches and theories (Keegan, 1996). These approaches enable learners to manage their own learning processes through structured interactions—learner-learner, learner-teacher, learner-system, and learner-content—within synchronous and asynchronous environments (Garrison, 1993; Irmak, 2023; Moore, 1989; Moore & Kearsley, 1996; Yılmaz, 2020). The rise of distance education has also introduced various key concepts, such as digital literacy, digital competence, digital proficiency, digital teaching, technopedagogical competence, 21st-century skills, technology use, and information literacy, all of which reflect one's aptitude in utilizing technology (Ilomäki et al., 2011).

Enhancing teachers' digital skills is considered essential for fostering active and continuous learning among 21st-century learners (Maderick et al., 2016), which has led to the emergence of various digital competence models and frameworks for educators. One of the most widely recognized is the European Framework for the Digital Competence of Educators (*DigCompEdu*), established in 2017 as part of the European Qualifications Framework (EQF) (Sillat et al., 2021). Aiming to provide a common understanding of educators' digital competences, this framework categorizes 22 distinct competencies into six key areas: (1) professional engagement (reflective practice, continuous professional development, professional collaboration, and organizational communication); (2) digital resources (selection, creation, modification, management, and sharing of digital content); (3) teaching and learning (teaching, collaborative learning, guidance, and self-regulated learning); (4) empowering learners (accessibility, inclusion, differentiation/personalization, and active engagement in learning); (5) facilitating learners' digital competence (information and media literacy, digital communication and collaboration, content creation, responsible use, and problem-solving); and (6) assessment (assessment strategies, feedback, planning, and analyzing evidence; Redecker, 2017).

Overall, it can be argued that, as outlined in the *DigCompEdu* framework, teachers in distance education must demonstrate proficiency in professional engagement, interaction, and communication, classroom management, effective use of digital resources, emerging teacher roles, ethical principles in the digital domain, safeguarding confidential data, fostering learners' digital competence, and assessment. It is now imperative to enhance the efficacy of distance education applications, formulate solutions for potential digital challenges, and monitor the continuity and quality of distance education (Jung, 2005; Southard & Mooney, 2015). Moreover, the perspectives and recommendations of all stakeholders are deemed key to achieving the established objectives related to the sustainability and quality of distance education (Benson, 2003).

The existing literature contains a wealth of research on teacher competences in distance education (Anderson, 2003; Anderson & Garrison, 1998; Can, 2020; Demirbağ, 2020; Hillman et al., 1994; Jeong et al., 2019; Moore, 1989; Rufai et al., 2015; Sinap, 2022; Şenyurt & Şahin, 2021; Tomei, 2010; Tonga, 2023; Yalman & Başaran, 2018; Zawacki-Richter & Naidu, 2016). Additionally, some studies have focused on stakeholders' perspectives regarding teachers' digital teaching skills within the *DigCompEdu* framework (Akşan-Kılıçaslan et al., 2022; Alptekin, 2023; Erbenzer, 2021; İlter-Tutar, 2023; Kocatürk-Kapucu, 2023; Keleş & Turan-Güntepe, 2018; Olpak, 2023; Özbek, 2020; Parlak-Aras, 2023; Şanlı, 2022; Yener, 2022). Ultimately, the principal objective of this study is to explore the needs of secondary school teachers regarding digital teaching skills in distance education (DTSDE), with a particular focus on the perspectives of teachers and students.

2. Method

2.1. Research Design

This study adopts a phenomenological design. Phenomenology focuses on phenomena that are consciously experienced yet remain insufficiently understood (e.g., events, situations, experiences, perceptions, tendencies, and concepts; Yıldırım & Şimşek, 2008). To this end, we conducted semi-structured interviews (Appendix 1) and focus group discussions with secondary school teachers and students to explore teachers' digital teaching skills in distance education and participants' experiences during distance education.

2.2. Sample

We recruited participants for this study through maximum diversity sampling. This sampling technique aims to select a diverse yet manageable sample by including individuals with relevant insights and potential contributions to the research problem (Yıldırım & Şimşek, 2008). In selecting the sample, we aimed to include a broad spectrum of participants to capture diverse perspectives. Accordingly, the study included teachers from different subject matter areas teaching at various types of schools, as well as students from different grade levels attending these schools. Therefore, we selected 12 teachers, with four teachers from each of the selected Vocational and Technical Anatolian High School (VTAHL), Anatolian High School (AHL), and, Anatolian Imam Hatip High School (religious vocational school; AIHHS). Teachers' introductory characteristics are demonstrated in Table 1.

Table 1. *Teachers' Introductory Characteristics*

Teacher	School Type	Subject Matter	Seniority
T1	AIHHS	Vocational Education	25 years
T2	AIHHS	Physics	7 years
T3	AIHHS	Vocational Education	20 years
T4	AIHHS	Turkish Language and Literature	29 years
T5	AHL	Physics	8 years
T6	AHL	Geography	8 years
T7	AHL	English	27 years
T8	AHL	Physics	27 years
T9	VTAHL	Information Technologies	14 years
T10	VTAHL	Textile Technologies	13 years
T11	VTAHL	Math	15 years
T12	VTAHL	Textile Technologies	12 years

The sample also consisted of 12 students, one student from each of the 9th, 10th, 11th, and 12th grades of these schools (Table 2).

Table 2. *Students' Introductory Characteristics*

Student	School Type	Grade
S1	AIHHS	9
S2	AIHHS	10
S3	AIHHS	11
S4	AIHHS	12
S5	AHL	9
S6	AHL	10
S7	AHL	11
S8	AHL	12
S9	VTAHL	9
S10	VTAHL	10
S11	VTAHL	11
S12	VTAHL	12

2.3. Data Collection Tools, Procedure, and Analysis

We collected the research data through a semi-structured interview form consisting of five overarching questions. Two experts reviewed the form to ensure its content validity (Appendix 1). Following the pilot study, we held interviews and focus group discussions in the 2023-2024 academic year.

As stated above, while teachers participated in semi-structured interviews, students took part in focus group discussions. The primary goal of a focus group discussion is to foster an interactive exchange where participants not only hear the questions posed but also listen to and respond to each other's perspectives (Yıldırım & Şimşek, 2008). To encourage more nuanced responses, students were divided into three focus groups, each consisting of four students representing different grade levels from the selected schools.

A descriptive analysis technique was employed to analyze the research data. This approach involves summarizing and interpreting the data based on identified themes and categories, which are then presented to the readers accordingly (Yıldırım & Şimşek, 2008, p. 224). After transcribing the interview recordings, we generated codes to capture participants' perspectives. The categorization of these codes was guided by the DigCompEdu framework (Gürültü et al., 2023; Redecker, 2017).

We sought the opinions of four assistant professors specializing in curriculum and instruction to enhance the credibility of the research. Specifically, we aimed to verify whether the identified codes accurately represented the emerging categories and themes through expert evaluation. The coding alignment provided by experts was then compared with that of the researchers, and the reliability of the findings was assessed using the following formula proposed by Miles and Huberman (1994): $\text{consensus} / (\text{consensus} + \text{dissidence}) \times 100$ (Gürültü et al., 2023). Accordingly, the reliability of teacher views was calculated as $36/(36+5) \times 100 = 0.88$, while that of student views was determined as $34/(34+8) \times 100 = 0.81$. As a general benchmark, an inter-coder agreement of at least 80% is considered acceptable (Miles & Huberman, 1994; Patton, 2002). The corresponding codes and categories are presented in the findings section through tables and figures for teachers (T) and students (S). Additionally, the findings are substantiated with direct participant statements.

In this study, we systematically compared and analyzed the data to identify underlying patterns. Additionally, we maintained prolonged engagement with participants during the interviews to ensure a meticulous, in-depth data collection process. To enhance validity, interview findings and subsequent reports were summarized and verified with participants (Fraenkel & Wallen, 2003). This research was conducted with the ethical approval of the Publication Research and Ethics Committee of Marmara University (No: 04-09, dated 10.04.2023).

3. Findings

3.1. Findings of Secondary School Teachers' DTSDE Needs

This section presents the findings from the interviews with teachers and students regarding secondary school teachers' DTSDE needs. Participant views were initially expressed as codes and subsequently grouped under the overarching theme of DTSDE. The theme was then divided into six categories originating in the *DigCompEdu* framework: professional engagement, digital resources, teaching and learning, learner empowerment, facilitating learners' digital competence, and assessment.

3.1.1. Findings of DTSDE Theme Through Teachers' Views

The findings revealed a total of 41 codes aired by participating teachers regarding DTSDE of secondary school teachers.

Table 3. *Professional Engagement Category from Teachers' Views in the DTSDE Theme*

CODE	<i>f</i>
Need for in-service training for distance education	12
Ability to collaborate with colleagues	11
Ability to use distance education platforms	10
Ability to use technological tools (tablet computer, smartphone, computer, etc.)	10
Ability to use basic office programs	9
Ability to resolve minor technical problems	7
Ability to collaborate with parents	7
Ability to record distance education classes	7
Ability to collaborate with digital communities	6
Ability to collaborate with school administration	6
Ability to use social media platforms	3
TOTAL	88

Participating teachers produced 11 codes for the “professional engagement” category regarding DTSDE and mostly aired the code “need for in-service training for distance education,” this code was followed by the codes “ability to collaborate with colleagues,” “ability to use technological tools,” “ability to use basic office programs,” “ability to minor simple technical problems,” “ability to collaborate with parents,” “ability to record distance education classes,” “ability to collaborate with digital communities,” “ability to collaborate with school administration,” and “ability to use social media platforms” (Table 3).

T1: *“At first, we didn’t understand any component of distance education. We even connected to students with the help of colleagues. We tried to make up for our lack of experience in that way. But if we had been given in-service training, we wouldn’t have been caught so off guard.”*

Table 4. *Teachers' Views Regarding Digital Resources*

CODE	<i>f</i>
Ability to select appropriate digital content	12
Ability to create digital content	10
Ability to share digital content	10
Ability to utilize digital storage (e.g., Google Drive, One Drive, etc.)	10
Ability to update digital resources	10
Ability to use Web 2.0 tools	9
TOTAL	61

Under the “digital resources” category, we obtained a total of 6 codes from the interviews with participating teachers. In this sense, they often stressed the importance of a teacher’s “ability to select appropriate digital content” for distance education. This code was followed by “ability to create digital content,” “ability to share digital content,” “ability to utilize digital storage,” “ability to update digital resources,” and “ability to use Web 2.0 tools” Table 4.

T10: *“I believe distance education has become a part of our lives. We can see its benefits from time to time. That’s why, at the very least, every teacher should be able to select appropriate digital*

content, share it, set up an online meeting, and teach online with ease. These are essential skills for teachers today."

Table 5. *Teaching and Learning Category from Teachers' Views in the DTSDE Theme*

CODE	<i>f</i>
Ability to design practical activities	11
Ability to actively engage students in learning	10
Ability to supervise students	10
Ability to provide students with feedback and corrections when relevant	9
Ability to have effective time management	8
Ability to use appropriate reinforcements	6
Ability to design online group work	5
Ability to adjust his/her tone of voice during teaching	5
Ability to use all kinds of verbal expressions and symbols (emojis, gifs, etc.)	4
Ability to use different teaching strategies/methods/techniques	4
Ability to perceive students' gestures and facial expressions	4
TOTAL	76

We discovered a total of 11 codes from teacher interviews pertinent to the "teaching and learning" category. The most produced code was found to be "ability to design practical activities," followed by the codes "ability to actively engage students in learning," "ability to supervise students," "ability to provide students with feedback and corrections when relevant," "ability to have effective time management," "ability to use appropriate reinforcements," "ability to design online group work," "ability to adjust his/her tone of voice during teaching," "ability to use all kinds of verbal expressions and symbols," "ability to use different teaching strategies/methods/techniques," and "ability to perceive students' gestures and facial expressions" (Table 6).

T9: *"We managed to get some students engaged because we were doing practice lessons. I could also have them practice by themselves. I'd connect to the available ones on my computer, say, 'Ali, your turn,' and get them involved in the lesson. But of course, getting everyone to participate was a bit tricky."*

Table 6. *Learner Empowerment Category from Teachers' Views in the DTSDE Theme*

CODE	<i>f</i>
Ability to ensure teacher-student communication	11
Ability to design teaching content considering students' individual needs	10
Ability to ensure student-student communication	7
Ability to ensure equal participation of students in the lesson	7
Ability to consider student demands and requests	4
TOTAL	39

We deduced 5 distinct codes for the "learner empowerment" category, and they highlighted the "ability to ensure teacher-student communication." This code was followed by "ability to design teaching content considering students' individual needs," "ability to ensure student-student

communication,” “ability to ensure equal participation of students in the lesson,” and “ability to consider student demands and requests” (Table 6).

T12: “Teachers really need to take this job seriously. From what I’ve seen during the distance education process, teaching feels less professional when it’s not face-to-face. A teacher’s motivation, enthusiasm, tone of voice, and energy all come across through the screen. Good communication, effective time management, using the right tone and emphasis, creating digital content, and making lessons engaging are all key factors.”

Table 7. *Facilitating Learners’ Digital Competence Category from Teachers’ Views in the DTSDE Theme*

CODE	<i>f</i>
Ability to design practical activities	8
Ability to help students create digital content	7
Ability to resolve students’ minor technical problems	5
Ability to inform students about their legal liability for any violations in distance education	4
TOTAL	24

Four distinct codes emerged for the “facilitating learners’ digital competence” category, and participants emphasized secondary school teachers’ “ability to design practical activities.” This code was followed by “ability to help students create digital content,” “ability to resolve students’ minor technical problems,” and “ability to inform students about their legal liability for any violations in distance education” (Table 7).

T5: “Of course, our students were mostly able to follow the instructions we gave them through the software experiment sets. On average, about 25 students attended our classes—maybe a bit more at the beginning. But we might not have been able to give every student a chance to participate.”

Table 8. *Assessment Category from Teachers’ Views in the DTSDE Theme*

CODE	<i>f</i>
Ability to design valid and reliable exams	10
Ability to supervise exams	10
Ability to utilize traditional and alternative/authentic assessment techniques	7
Ability to identify student comprehension	6
TOTAL	33

In this category, participating teachers provided 4 distinct codes and mostly addressed secondary teachers’ “ability to design valid and reliable exams.” This code was followed by “ability to supervise exams,” “ability to utilize traditional and alternative/authentic assessment techniques,” and “ability to identify student comprehension” (Table 8).

T9: “At the end of each lesson, I might give students assignments, like preparing homework or presentations. I think the process could be assessed this way. Honestly, I’m not sure about the reliability and validity of online exams. I believe there’s an issue with how valid and reliable they are.”

3.1.2. Findings of DTSDE Theme Through Students' Views

The findings revealed a total of 42 codes aired by participating students regarding the DTSDE of secondary school teachers.

Table 9. Professional Engagement Category from Students' Views in the DTSDE Theme

CODE	<i>f</i>
Ability to use distance education platforms	11
Ability to resolve minor technical problems	11
Ability to collaborate with colleagues	10
Ability to record distance education classes	8
Ability to use technological tools (tablet computer, smartphone, computer, etc.)	6
Ability to collaborate with school administration	6
Ability to collaborate with digital communities	5
Ability to collaborate with parents	4
Ability to use basic office software	4
Need for in-service training for distance education	3
TOTAL	65

Participating students produced 10 codes for the “professional engagement” category regarding secondary school teachers’ DTSDE and mostly aired the code “ability to use distance education platforms,” this code was followed by the codes “ability to minor simple technical problems,” “ability to collaborate with colleagues,” “ability to record distance education classes,” “ability to use technological tools,” “ability to collaborate with school administration,” “ability to collaborate with digital communities,” “ability to collaborate with parents,” “ability to use basic office software,” and “need for in-service training for distance education” (Table 9).

S1: “First off, the teacher needs to know their way around the computer or device they’ll be using. They should also take the time to explore the platform for distance education and figure out how to fix any issues that come up.”

Table 10. Digital Resources Category from Students' Views in the DTSDE Theme

CODE	<i>f</i>
Ability to utilize digital storage (e.g., Google Drive, One Drive, etc.)	9
Ability to select appropriate digital content	9
Ability to create digital content	8
Ability to use Web 2.0 tools	7
Ability to share digital content	6
Ability to update digital resources	5
TOTAL	44

We deduced 6 codes for the “digital resources” category from focus group discussions, and participating students frequently addressed teachers’ “ability to utilize digital storage.” This code was followed by “ability to select appropriate digital content,” “ability to create digital content,” “ability to

use Web 2.0 tools,” “ability to share digital content,” and “ability to update digital resources” (Table 10).

S4: “Our teachers always say we are the tech-savvy generation, so they should keep that in mind and try to grab our attention. Like with Google Drive—in my old school, everyone used it. Back in middle school, our teacher would make a presentation there and have us add to it. Teachers should recognize that we might know some stuff they don’t.”

Table 11. Teaching and Learning Category from Students’ Views in the DTSDE Theme

CODE	<i>f</i>
Ability to adjust his/her tone of voice during teaching	11
Ability to have effective time management	11
Ability to actively engage students in learning	10
Ability to supervise students	8
Ability to design practical activities	5
Ability to make the teaching-learning process enjoyable	5
Ability to provide students with feedback and corrections when relevant	4
Ability to perceive students’ gestures and facial expressions	3
Ability to use appropriate reinforcements	2
Ability to use all kinds of verbal expressions and symbols (emojis, gifs, etc.)	2
Ability to design online group work	1
TOTAL	62

We discovered a total of 11 codes from focus group discussions concerning the “teaching and learning” category. The most produced code was found to be “ability to adjust his/her tone of voice during teaching,” followed by the codes “ability to have effective time management,” “ability to actively engage students in learning,” “ability to design practical activities,” “ability to have effective time management,” “ability to supervise students,” “ability to make the teaching-learning process enjoyable,” “ability to provide students with feedback and corrections when relevant,” “ability to perceive students’ gestures and facial expressions,” “ability to use appropriate reinforcements,” “ability to use all kinds of verbal expressions and symbols,” and “ability to design online group work” (Table 11).

S8: “Well, students are attending the class from behind the screen too. I think teachers should adjust to that and act accordingly. For instance, I believe all teachers should turn on their cameras during online classes and make sure the camera angle is right. They should also manage their tone of voice well and address students in a way that keeps them engaged.”

Table 12. *Learner Empowerment Category from Teachers' Views in the DTSDE Theme*

CODE	<i>f</i>
Ability to ensure teacher-student communication	11
Ability to demonstrate digital empathy	8
Ability to design teaching content considering students' individual needs	8
Ability to consider student demands and requests	8
Ability to ensure equal participation of students in the lesson	6
Ability to offer support education when necessary	4
TOTAL	45

Students produced a total of 6 codes for the “learner empowerment” category and frequently pointed out teachers’ “ability to ensure teacher-student communication” among secondary school teachers’ DTSDE. This code was followed by “ability to demonstrate digital empathy,” “ability to design teaching content considering students’ individual needs,” “ability to consider student demands and requests,” “ability to ensure equal participation of students in the lesson,” and “ability to offer support education when necessary” (Table 12).

S7: “It’s just as important to be able to see and hear teachers well in an online class as it is in face-to-face lessons. Teachers also need to keep an eye on their students and stay in constant communication with them.”

Table 13. *Facilitating Learners’ Digital Competence Category from Students’ Views in the DTSDE Theme*

CODE	<i>f</i>
Ability to resolve students’ minor technical problems	11
Ability to inform students about their legal liability for any violations in distance education	10
Ability to design practical activities	9
Ability to help students create digital content	5
Ability to inform students about cybersecurity	2
TOTAL	37

Five distinct codes emerged in the “facilitating learners’ digital competence” category, and participants emphasized secondary school teachers’ “ability to resolve students’ minor technical problems.” This code was followed by “ability to inform students about their legal liability for any violations in distance education,” “ability to design practical activities,” “ability to help students create digital content,” and “ability to inform students about cybersecurity” (Table 13).

S5: “Teachers should be able to troubleshoot issues with computers or cameras. For example, if a student can’t adjust the sound, the teacher should guide them. Teachers should offer support in such situations.”

Table 14. *Assessment Category from Teachers' Views in the DTSDE Theme*

CODE	<i>f</i>
Ability to supervise exams	9
Ability to design valid and reliable exams	9
Ability to utilize traditional and alternative/authentic assessment techniques	8
Ability to identify student comprehension	3
TOTAL	29

In this category, participating students provided 4 distinct codes and mostly addressed secondary teachers' "ability to supervise exams." This code was followed by "ability to design valid and reliable exams," "ability to utilize traditional and alternative/authentic assessment techniques," and "ability to identify student comprehension" (Table 14).

S6: "A teacher should be able to design exams using tools like Canva or Word as past exams are easily accessible online. It's important to protect exam credentials. A teacher also needs to be familiar with the platform where the class will be held and be able to monitor it. Moreover, s/he should be alert to prevent cheating."

4. Discussion, Conclusions, and Recommendations

The present study depends on teacher and student views to seek the DTSDE needs of secondary school teachers. This section presents an overall evaluation of the data from each participant group for the specified categories.

The findings in the 'professional engagement' category indicate that secondary school teachers need in-service training for distance education to support their continuous professional development. Additionally, they require skills to navigate distance education platforms, use related tools, and troubleshoot minor technical issues. Consistent with our findings, the literature highlights the importance of communication, collaboration, and openness to innovation, along with participation in seminars and conferences, as key factors in teachers' professional engagement for enhancing their digital competence in distance education (Erbenzer, 2021; Şanlı, 2022; Yener, 2022). Parlak-Aras (2023) found that teachers emphasized communication with colleagues, parents, and students as a crucial aspect of their professional engagement. She also underscored the significance of technological competence and participation in online professional development for strengthening teachers' digital skills. Similarly, Olpak (2023) highlighted the critical role of in-service training, the use of technological tools, and effective teacher-learner communication in digital environments for improving digital competence. Besides, it is known that various interaction and communication elements contribute to the design of distance education (Anderson, 2003; Jeong et al., 2019). Moore (1989) categorized interaction in distance education as learner-content, learner-teacher, and learner-learner interaction, while Hillman et al. (1994) introduced the concept of learner-interface interaction. Additionally, Zawacki-Richter and Naidu (2016) proposed learner-institution interaction, whereas Anderson and Garrison (1998) identified teacher-teacher and content-content interaction as essential components of distance education.

Participants' views categorized under the 'digital resources' dimension of secondary school teachers' DTSDE needs suggest that teachers inevitably have shortcomings in selecting, creating, and restructuring digital resources for distance education, as well as in storing these resources and

addressing potential ethical violations. As previously demonstrated by Olpak (2023), the effective use of digital resources is essential for enhancing teachers' digital competence. These resources should be designed to engage learners and sustain their interest, while teachers should create digital content that promotes continuous learning. Additionally, providing opportunities for learners to generate their own digital resources was shown to enhance motivation. Prior research also highlighted the importance of teachers' skills in selecting and utilizing digital resources (Alptekin, 2023; Erbenzer, 2021; İlder-Tutar, 2023; Özbek, 2020; Parlak-Aras, 2023; Şanlı, 2022). Kocatürk-Kapucu (2023) emphasized the critical role of teachers' ability to select, create, and store digital resources in distance education. Furthermore, both Parlak-Aras (2023) and Kocatürk-Kapucu (2023) found that issues related to "copyright" and "storage" of digital resources are central to their effective use, aligning with our findings. Overall, the literature underscores the significance of designing and developing digital resources to ensure an efficient and engaging teaching-learning process and to enhance interaction in distance education (Yalman & Başaran, 2018; Şenyurt & Şahin, 2021). The recent global pandemic has further reinforced the importance of utilizing and diversifying digital resources in distance education (Demirbağ, 2020).

In the "teaching and learning" category, both teachers and students emphasized the need for secondary school teachers to provide timely feedback and corrections, manage time effectively, adjust their tone of voice appropriately during teaching, and actively engage students through practical activities. Consistent with our findings, İlder-Tutar (2023) and Kocatürk-Kapucu (2023) found that teachers in distance education tend to prioritize practical activities, the integration of digital resources, and timely feedback. Similarly, Olpak (2023) highlighted that teachers' digital competence—such as utilizing diverse teaching strategies, fostering active student participation, implementing group work, incorporating practical activities, and employing collaborative learning methods—plays a crucial role in teaching-learning. In line with these findings, Parlak-Aras (2023) emphasized the importance of group work and teacher self-regulation skills, as these skills contribute to students' ability to plan, document, and monitor their own learning. Additionally, prior research identified teachers' time management skills as a critical factor in distance education (İlder-Tutar, 2023). Given the facilitator role of teachers in distance education, learners are expected to take a more active role. Thus, they should develop self-motivation, particularly in sustaining engagement in lessons, while also adapting to the unique demands of the distance education model (Tomei, 2010).

In the "learner empowerment" category, participants frequently highlighted that secondary school teachers need to establish effective teacher-learner communication, design instructional content tailored to students' individual needs, provide support education for learners with special needs, and sustain learner motivation throughout the teaching-learning process. The literature frequently emphasizes that providing tailored instructions for learners with special needs in using digital resources, establishing personalized communication in online settings, integrating applications that facilitate peer interaction, and utilizing online question-and-answer platforms can significantly enhance learners' digital competence (Kocatürk-Kapucu, 2023). Moreover, previous research underscores the importance of incorporating online projects and assignments, practical activities that promote learner engagement and experience, and strategies that foster collaborative learning (Erbenzer, 2021; İlder-Tutar, 2023; Olpak, 2023; Parlak-Aras, 2023). Similar to face-to-face education, effective classroom management remains essential in distance education (Tonga, 2023). In this regard, well-structured lesson planning plays a crucial role in maintaining classroom dynamics and ensuring the efficient use of digital tools (Can, 2020). When executed effectively, classroom management in

distance education enhances flexibility, interaction, and collaboration while mitigating spatial and temporal constraints (Rufai et al., 2015).

Our findings pertinent to the “facilitating learners’ digital competence” category showed that secondary school teachers are likely to need skills such as guiding learners regarding their minor technical issues, designing practical activities, helping students to create digital content, and informing them about their legal liability for any violations in distance education. A review of the literature reveals a strong alignment in findings, particularly regarding teachers’ role in fostering learners’ digital competence in distance education. Previous research highlighted that distance education necessitates equipping learners with information and media literacy skills, fostering peer interaction, encouraging active participation, facilitating hands-on experience with digital technologies, addressing technical challenges, and promoting information ethics (İlter-Tutar, 2023; Kocatürk-Kapucu, 2023; Keleş & Turan-Güntepe, 2018). In addition, the development of learners’ digital skills was linked to ensuring information reliability, acting responsibly in digital environments, utilizing credible digital resources (Parlak-Aras, 2023), and implementing feasible learning activities (Alptekin, 2023; Erbenzer, 2021; Olpak, 2023). From this perspective, it is evident that learners must take an active role in managing their own learning, engage meaningfully in the teaching-learning process, develop adequate digital literacy skills, take responsibility for their online actions, and demonstrate intrinsic motivation to succeed in distance education (Sinap, 2022).

Participants’ views within the ‘assessment’ category suggest that secondary school teachers have a clear need to enhance their assessment skills in distance education. These needs involve the ability to employ both traditional and alternative/authentic assessment methods, design valid and reliable measurement tools for process- and result-based assessments, and supervise their assessment practices. As with identifying learning objectives, preparing content, and designing instruction, assessment in distance education inevitably differs from face-to-face education (Akyıldız, 2015; Puspitasari, 2010). The diversity of the learner population, the varied objectives, and the distinct success criteria in distance education, all contribute to unique assessment processes compared to traditional education (Thorpe, 1998). In this context, the literature often highlights the use of collaborative assessment practices, assessments through online assignments and projects, tracking course attendance, and employing process- and outcome-based assessment approaches as key strategies for developing teachers’ assessment skills in distance education (Akdeniz-Kiliçaslan et al., 2022; Kocatürk-Kapucu, 2023). Furthermore, prior studies stressed the importance of teachers’ proficiency in utilizing Web 2.0 tools, online surveys, and digital platforms for providing effective feedback and developing valid and reliable assessment tools (Erbenzer, 2021; Parlak-Aras, 2023).

This study is expected to make an original contribution to the literature on secondary school teachers’ DTSDE in distance education by incorporating both teacher and student perspectives, based on the DigCompEdu framework. Our findings will provide a foundation for future studies, helping researchers identify the DTSDE needs of educators in other K-12 schools and universities. Furthermore, our results have the potential to contribute to mapping the nationwide DTSDE of teachers. The research findings can also help inform the development of in-service training programs for DTSDE by guiding the identification of philosophy, needs, goals, content selection, teaching-learning processes, and assessment strategies. It is recommended that future researchers adopt diverse research designs, sample groups, instruments, and data collection and analysis methods to uncover more on the subject.

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Appendices

Appendix 1. Interview Form

School Type :
 Subject/Grade :
 Professional Seniority/Year :
 Date and Hour/Interview Duration :

INTRODUCTION

Hi! I am I am a doctoral student in the Graduate School of Educational Sciences of University. Currently, I am working on my doctoral thesis titled “.....” with my supervisor, Today, I am here to interview you as part of my research. I believe the research findings will be of utmost importance to educators and policymakers. It is my hope that this study will also prove beneficial to you. I respectfully request your personal opinions, if you are willing to share them.

Before proceeding, I want to clarify several points:

- The interview is expected to last approximately 30 minutes.
- The content of the interview will be kept strictly confidential. The information obtained will not be disseminated to any third parties, and your personal credentials will not be mentioned in any information disclosed.
- You are encouraged to ask questions and may end the interview at any time.
- Are there any additional inquiries you wish to address prior to the interview?
- If this would be agreeable, I would like to record the interview. This would allow for more efficient use of time and facilitate a more thorough analysis of your responses. Should you feel uncomfortable with this proposal, you may take the audio recording and interview notes and end the interview. Is this course of action appropriate?

- I would like to express my gratitude for your participation in this research study and for the time you have dedicated to it.

INTERVIEW QUESTIONS

1. What are the distance education digital teaching skills that teachers possess/should possess, in your opinion? Could you please provide concrete examples? Could you please share your personal experiences in this regard?

1.a. Among these or additional distance education digital teaching skills, are there any that you believe teachers should develop? If so, please specify.

2. What preparations do you expect teachers to make before a distance education class? Could you please share your experiences in this regard?

2.a. What skills do you think teachers should develop regarding the preparations for a distance education class?

3. What are your expectations from teachers for effective learning and teaching in distance education? Could you please share your personal experiences in this regard?

3.a. What skills should teachers develop to create an effective distance education learning environment?

4. How do you expect teachers to manage distance education classes? Could you please share your personal experiences in this regard?

4.a. What skills do you consider to be essential for an effective distance education class/classroom management?

4.b. What skills should teachers develop for their distance education classes/classroom management?

5. What are your expectations from teachers regarding exam preparation, implementation, and assessment in distance education? Could you please share your personal experiences in this regard?

5.a. What skills should teachers develop regarding assessment in distance education?

6. Are there any other pertinent points or suggestions that should be addressed? Could you please share your personal experiences in this regard?

Geniş Özet

Giriş

İçinde bulunduğumuz yüzyılda yaşanan dijital gelişmeler nitelikli bireylerin yetiştirilmesi için ihtiyaç duyulan bireysel özellikleri de etkilemektedir. Bu dijital dönüşüm, her alanda olduğu gibi eğitim ekosistemi üzerinde de etkisini hissettirmekte, öğrenenlere kazandırılması düşünülen bilgi, beceri ve tutum gibi yeterliklerde zorunlu değişikliklere neden olmaktadır (Cansoy, 2018). Yaşanan bu dönüşüm süreci eğitim ortamlarının en önemli aktörlerinden olan öğretmenleri de etkilemekte; hangi becerinin kazandırılması ya da bu becerilere yönelik öğrenmelerin nasıl gerçekleştirileceği noktasında öğretene sorumluluklar yüklemektedir (Voogt vd., 2013). Çağımızda öğretmenlerin dijital araçları en etkin ve ekonomik olarak kullanabilmeleri ve yine bu araçları öğrenenlerin nasıl kullanabileceği noktasında öğrenenlere rehberlik etmesi beklenmektedir (İpek ve Acuner, 20). Diğer taraftan dijital dönüşümün etkisinde değişime uğrayan eğitim ekosistemleri, 2019 yılında gerçekleşen pandemi süreci ile birlikte bu dönüşümlere ek olarak uzaktan eğitim uygulamalarını ana gündemine almıştır.

Uzaktan eğitim uygulamalarının etkililiğini artırmak, bu eğitim süreçlerinde ortaya çıkabilecek sorunlara çözüm önerileri üretmek, uzaktan eğitimin sürekliliğini ve kalitesini takip etmek önemli hale gelmiştir (Jung, 2005; Southard & Mooney, 2015). Uzaktan eğitimin sürekliliği ve kalitesi açısından belirlenen amaçların gerçekleştirilmesine yönelik uzaktan eğitim programların planlanması ve geliştirilme süreçlerinde tüm paydaşların görüşlerinin dikkate alınması ve bütün boyutlarının ele alınması gerekmektedir (Benson, 2003).

Bu çalışmanın temel amacı; ortaöğretim öğretmenlerinin uzaktan eğitimde dijital öğretim becerileri (UZEDÖB)'ne yönelik ihtiyaçlarının öğretmen ve öğrenci görüşleri açısından tespit edilmesidir. Araştırmada bu amaçla; ortaöğretim öğretmen ve öğrencilerinin görüşlerine başvurulmuştur.

Yöntem

Nitel araştırma desenlerinden olgubilim deseninde gerçekleştirilen araştırma, 2023-2024 yılında İstanbul'da görev yapan, maksimum çeşitlilik örnekleme ile belirlenen 12 ortaöğretim öğretmeni ve öğrenim gören 12 ortaöğretim öğrencisi olmak üzere toplam 24 katılımcı ile gerçekleştirilmiştir. Yarı yapılandırılmış görüşme formu aracılığıyla gerçekleştirilen araştırma; öğretmenler ile görüşmeler, öğrencilerle ise odak grup görüşmeler yapılarak gerçekleştirilmiştir. Elde edilen bulgular, betimsel içerik analizi yöntemiyle analiz edilmiş; kod, kategori ve tema şeklinde ifade edilmiştir. Katılımcılar tarafından üretilen kodlar, *DigCompEdu* dijital yeterlik çerçevesi dikkate alınarak mesleki katılım, dijital kaynaklar, öğretme öğrenme süreci, ölçme-değerlendirme, öğrenci güçlendirme, öğrencilerin dijital yeterliklerini destekleme/güçlendirme kategorileri altında gruplandırılmış ve bu kategoriler UZEDÖB teması altında birleştirilmiştir.

Bulgular

Araştırma sonuçlarına göre öğretmenlerin 41, öğrencilerin ise 42 kod ile ortaöğretim öğretmenlerinin UZEDÖB ihtiyaçlarına yönelik görüş belirttikleri görülmüştür. Katılımcı görüşleri açısından bakıldığında ortaöğretim öğretmenlerinin UZEDÖB'e yönelik uzaktan eğitim öğretme öğrenme süreçleri için hizmet içi eğitim almalı; dijital içerikleri seçebilmeli, oluşturabilmeli ve düzenleyebilmeli; uygulamalı etkinlik yapabilmeli; öğrenci-öğretmen iletişimini sağlayabilmeli; zaman

yönetimini sağlayabilmeli; ses tonunu ayarlayabilmeli; geçerli ve güvenilir sınavlar hazırlayabilmeli vb. şeklinde kodların ön plana çıktığı görülmektedir.

Sonuç, Tartışma ve Öneriler

Ortaöğretim Öğretmenlerinin UZEDÖB ihtiyaçlarına dair katılımcı görüşleri **“Mesleki Katılım”** kategorisi açısından tüm katılımcıların görüşleri birlikte değerlendirildiğinde; uzaktan eğitim için hizmet içi eğitim alınması (araştırmacı-yeniliğe açık öğretmen), teknolojik araçların (tablet, akıllı telefon, bilgisayar vb.) ve uzaktan eğitim platformlarının kullanımı ve uzaktan eğitimde basit teknik problemlerin çözülmesi kodlarının öne çıktığı görülmektedir.

Mesleki katılım kategorisi; öğretmenlerin uzaktan eğitimdeki yansıtıcı uygulama, dijital alanda sürekli mesleki gelişim, mesleki iş birliği ve örgütsel iletişim becerilerini içeren kategoriye ifade etmektedir. Gerek araştırma bulguları gerekse de alanyazın incelendiğinde ortaöğretim öğretmenlerinin uzaktan eğitimdeki mesleki katılım becerilerine yönelik ihtiyaçları açısından; öğretmenlerin uzaktan eğitim öncesinde veya sürecinde hizmet içi eğitim almalarının sürekli mesleki gelişimleri ve araştırmacı kimlikleri açısından önemli olduğu görülmektedir. Bunun yanında uzaktan eğitimde platform ve teknolojik araç kullanımı; yine bu platform ve araçları kullanırken karşılaşılabilecekleri teknik problemlerle baş edebilmeleri açısından birtakım ihtiyaçları olduğu anlaşılmaktadır.

Ortaöğretim Öğretmenlerinin UZEDÖB ihtiyaçlarına dair katılımcı görüşleri **“Dijital Kaynaklar”** kategorisi açısından tüm katılımcıların görüşleri birlikte değerlendirildiğinde; uzaktan eğitim için dijital içerik seçebilme, paylaşabilme, oluşturabilme ve dijital depolama alanlarını (Google drive, one drive vb.) kullanabilme kodlarının öne çıktığı görülmektedir.

Dijital kaynaklar kategorisi; öğretmenlerin uzaktan eğitimdeki dijital kaynakları seçme, oluşturma, düzenleme, yönetme, koruma ve paylaşma becerilerini içeren kategoriye ifade etmektedir. Araştırma bulguları ve alanyazın birlikte incelendiğinde; ortaöğretim öğretmenlerinin uzaktan eğitimdeki dijital kaynak kullanımına yönelik ihtiyaçları açısından; uzaktan eğitim süreçlerinde kullanabilecekleri dijital kaynakların seçilmesi, oluşturulması, yeniden düzenlenmesi, bu kaynakların depolanması ve dijital kaynaklara yönelik etik ihlal açısından birtakım ihtiyaçları olduğu anlaşılmaktadır.

Ortaöğretim Öğretmenlerinin UZEDÖB ihtiyaçlarına dair katılımcı görüşleri **“Öğretme Öğrenme Süreci”** kategorisi açısından tüm katılımcıların görüşleri birlikte değerlendirildiğinde; ortaöğretim öğretmenleri açısından öğretme öğrenme sürecinde; dönüt ve düzeltme verebilmeli, öğrenciyi sürece aktif dâhil edebilmeli, öğrenciyi denetleyebilmeli (kamera vb. araçlar), zaman yönetimini sağlayabilmeli, ses tonunu ayarlayabilmeli ve uygulamalı etkinlik yapabilmeli kodlarına yoğunlaşıldığı görülmektedir.

Öğretme öğrenme süreci kategorisi; öğretmenlerin uzaktan eğitimdeki öğretme, iş birlikli öğrenme, rehberlik etme, öz düzenlemeli öğrenme becerilerini içeren kategoriye ifade etmektedir. Alanyazında yapılan benzer araştırmalar ve bu araştırma kapsamında elde edilen sonuçlardan hareketle; ortaöğretim öğretmenlerinin uzaktan eğitimde öğretme öğrenme sürecine yönelik ihtiyaçları açısından uzaktan eğitimde; dönüt ve düzeltme verebilme, zaman yönetimi sağlama, ses tonunu ayarlayabilme; öğrenciyi yönelik uygulamalı etkinliklere yer vererek sürece aktif dâhil edebilme gibi ihtiyaçları olduğu görülmektedir.

Ortaöğretim Öğretmenlerinin UZEDÖB ihtiyaçlarına dair katılımcı görüşleri **“Öğrenci Güçlendirme”** kategorisi açısından tüm katılımcıların görüşleri birlikte değerlendirildiğinde; öğretmen - öğrenci iletişimini sağlayabilmeli, öğrencinin bireysel ihtiyaçlarını dikkate alarak içeriği

planlayabilmeli, öğrenciye farklı zamanlarda destek eğitimi sunabilmeli ve uzaktan eğitimde öğrenciye motive edebilmeli kodlarının öne çıktığı görülmektedir.

Öğrenci güçlendirme kategorisi; öğretmenlerin uzaktan eğitimdeki öğrenciye yönelik; ulaşılabilirlik ve kapsayıcılık, farklılaştırma ve bireyselleştirme, öğrencileri öğrenme sürecine aktif bir şekilde dâhil etme becerilerini içeren kategoriyi ifade etmektedir. Araştırma bulguları ve alanyazından elde edilen sonuçlar birlikte incelendiğinde; ortaöğretim öğretmenlerinin uzaktan eğitimde öğrencilerin güçlendirilmesine yönelik birtakım ihtiyaçları olduğu görülmektedir. Öğretmenlerin, uzaktan eğitimde; öğrenen ve öğretmen arasında etkili bir iletişim sağlanması, öğrenenin bireysel ihtiyaçlarının dikkate alınarak içeriğin planlanması ve öğretme öğrenme sürecine yansıtılması, gerektiği durumlarda özel ihtiyacı olan öğrenenlere yönelik destek eğitimi verebilmesi ve sürecin genelinde öğreneni motive edebilmesi açısından ihtiyaçları olduğu görülmektedir.

Ortaöğretim Öğretmenlerinin UZEDÖB ihtiyaçlarına dair katılımcı görüşleri **“Öğrencilerin Dijital Yeterliklerini Destekleme/Geliştirme”** kategorisi açısından tüm katılımcıların görüşleri birlikte değerlendirildiğinde; uzaktan eğitimde öğrencinin dijital içerik üretebilmesi için yardımcı olabilmeli, ihlallerden doğabilecek yasal sorumluluklar konusunda öğrenciyi bilgilendirebilmeli, öğrencinin basit teknik problemlerini çözebilmesi ve öğrenciye uygulamalı etkinlik yaptırabilmeli kodlarını vurguladıkları görülmektedir.

Öğrencilerin dijital yeterliklerini destekleme/geliştirme kategorisi; öğretmenlerin uzaktan eğitimdeki öğrenciye yönelik; bilişim ve medya okuryazarlığı, iletişim, içerik oluşturma, sorumlu kullanma ve problem çözme becerilerini içeren kategoriyi ifade etmektedir. Araştırmanın genelinden ve literatürdeki diğer araştırmalar açısından bakıldığında; uzaktan eğitim süreçlerinde öğrenen; öğrenenin süreçte karşılaştığı teknik problemlere yönelik rehberlik yapması, öğrenenin sürece dâhil olabileceği etkinliklere yer vermesi, bu etkinlikler için öğreneninde dijital içerik üretebilmesi ve uzaktan eğitim sürecinde ihlallerden doğabilecek yasal sorumluluklar konusunda öğrenciyi bilgilendirmesi gibi becerilere yönelik ihtiyaçları olduğu görülmektedir.

Ortaöğretim Öğretmenlerinin UZEDÖB ihtiyaçlarına dair katılımcı görüşleri **“Ölçme değerlendirme”** kategorisi açısından tüm katılımcıların görüşleri birlikte değerlendirildiğinde; uzaktan eğitimde geleneksel ve alternatif/otantik ölçme-değerlendirme tekniklerini kullanabilmeli, geçerli ve güvenilir sınavlar hazırlayabilmeli ve sınavları denetleyebilmeli kodlarının öne çıktığı görülmektedir.

Ölçme-değerlendirme kategorisi; öğretmenlerin uzaktan eğitimdeki ölçme stratejileri, dönüt verme ve planlama, bulguları analiz etme becerilerini içeren kategoriyi ifade etmektedir. Araştırma sonuçları incelendiğinde öğretmenlerin uzaktan eğitim sürecinde ölçme-değerlendirme becerilerine yönelik; geleneksel ve alternatif/otantik ölçme-değerlendirme teknikleri konusunda donanımlı olmaları, uzaktan eğitimde süreç ve sonuç odaklı değerlendirmeler yaparken geçerli ve güvenilir ölçme araçları geliştirebilmeleri ve bu ölçme-değerlendirme uygulamalarını denetleyebilmeleri gibi birtakım ihtiyaçları olduğu görülmektedir.

Araştırma kapsamında; ortaöğretim öğretmenlerinin uzaktan eğitimde dijital öğretim becerilerine yönelik ihtiyaçları tespit edilmeye çalışılmıştır. Araştırmacılar tarafından yeni yapılacak araştırmalarda farklı araştırma desenleri, örneklem grupları, veri toplama araçları, verilerin toplanması ve analizi yöntemlerini kullanabilir. Yine araştırmacılar araştırma bulgularını; öğretmenlerin UZEDÖB ihtiyaçlarına yönelik geliştirebilecekleri hizmet içi eğitim programları için eğitim felsefesi, ihtiyaçların ve hedeflerin belirlenmesi, içeriğin seçilmesi ve düzenlenmesi, öğretme öğrenme süreçlerinin ve ölçme-değerlendirme durumlarının belirlenmesi açısından kılavuz olarak kullanabilir.

Publication Ethics Statement

The present study was conducted upon ethical approval from the Publication Research and Ethics Committee of Marmara University (04-09 dated 10/04/2023). Throughout the research, we strictly adhered to all the rules specified in the “Directive of Scientific Research and Publication Ethics in Higher Education Institutions.” The directive’s second section, titled “Acts Against Scientific Research and Publication Ethics,” was not subject to any infractions. Moreover, the rules concerning scientific integrity, ethical conduct, and citation were followed while drafting the manuscript; no falsification was made on the collected data. This study has not been submitted for evaluation to any other academic publication platform.

Author Contributions

All authors contributed equally to the manuscript.

Conflict of Interest

The present study is grounded in a part of the doctoral thesis of the first author under the joint advisement of the second and third authors at the Graduate School of Educational Sciences of Marmara University. A part of the research was presented at the 11th International Congress on Curriculum and Instruction (ICCI-EPOK 2023). We declare no conflict of interest pertinent to this research.



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