IJESOS International Journal of Educational and Social Sciences -
ESBİD Uluslararası Eğitim ve Sosyal Bilimler Dergisi,
Cilt 3, Sayı 1, Mayıs 2024 - Volume 3, Issue 1, May 2024

AN INVESTIGATION OF THE DIGITAL LITERACY SKILL LEVELS OF CEIT TEACHER CANDIDATES*

BÖTE ÖĞRETMEN ADAYLARININ DİJİTAL OKURYAZARLIK BECERİ DÜZEYLERİNİN İNCELENMESİ

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Makale bilgisi | Article information
Makale Türü / Article Type: Araştırma Makalesi / Research Article
Geliş Tarihi / Date Received: 16 Ocak / 16 January
Kabul Tarihi / Date Accepted: 21 Nisan / 21 April
Yayın Tarihi / Date Published: 26 Mayıs / 26 May
Yayın Sezonu / Pub Date Season: Mayıs 2024 / May 2024
Doi: https://doi.org/10.5281/zenodo.11316718

Bu Makaleye Atıf İçin / To Cite This Article: Yaşar, Ç. & Sarıtaş, M. T. (2024). An Investıgation of the Digital Literacy Skill Levels of Ceit Teacher Candidates. *IJESOS International Journal Of Educational and Social Sciences 3(1)*, 1-17.

*This study is based on the first author's master's thesis and the second author is the thesis advisor of the first author.

İletişim:
e-posta: editor@ijesos.com
Web: www.ijesos.com

Öz:
Bu çalışmanın amacı, bilgisayar ve öğretim teknolojileri bölümü öğretmen adaylarının dijital okuryazarlık için Avrupa Dijital Yeterlilik Çerçevesi'ndeki yeterlilik düzeylerini değerlendirmektir. Veriler, yarı yapılandırılmış bir görüşme formu ve nitel araştırma tekniklerinden biri olan betimsel içerik analizi kullanılarak toplanmıştır. Veri toplama aracına son halini vermek için uzman tavsiyesinden yararlanılmıştır. Katılımcılar, 2018-2019 akademik yılı bahar döneminde Batı Anadolu'daki bir üniversitenin eğitim fakültesinde öğrenim gören 16 öğretmen adayından oluşmaktadır. Görüşme formundan elde edilen bilgilerden beş ana tema ve alt temalar oluşturulmuştur. Ana temalar bilgi işleme, iletişim, içerik oluşturma, güvenlik ve problem çözmedir. Avrupa Dijital Yeterlilik Çerçevesi'ne uygun olarak geliştirilen form kullanılarak toplanan verilerin analiz edilmesi sonucunda dijital okuryazarlık becerileri açısından dokuz öğretmen adayının uzman düzeyde, beş öğretmen adayının gelişim düzeyinde ve iki öğretmen adayının başlangıç düzeyinde olduğu tespit edilmiştir. Ayrıca üçüncü ve dördüncü sınıf öğretmen adaylarının ifade edilen sorulara acemi seviyesine uygun bir kullanıcı düzeyinde yanıt verdikleri dikkat çekmektedir. Eğitimcilerin bu sorunların farkında olması ve uygun öğretim programlarının bu sorunlar göz önünde bulundurularak geliştirilmesi önerilmektedir.

Anahtar Kelimeler: Avrupa dijital yeterlilik çerçevesi, dijital okuryazarlık, kariyer, böte, öğretmen adayları.

Abstract:
The aim of this study is to evaluate the proficiency levels of pre-service teachers in the Department of Computer Education and Instructional Technology in the European Digital Competence Framework for digital literacy. Data were collected using a semi-structured interview form and descriptive analytic methodology, one of the qualitative research techniques. Expert advice was used to finalize the data collection tool. The participants consisted of 16 pre-service teachers studying at the faculty of education of a university in Western Anatolia in the spring semester of the 2018-2019 academic year. Five main themes and sub-themes were formed from the information obtained from the interview form. The main themes are information processing, communication, content creation, security and problem solving. After analyzing the data collected using the form developed in accordance with the European Digital Competence Framework, it was determined that nine pre-service teachers were at the expert level, five pre-service teachers were at the development level and two pre-service teachers were at the beginning level in terms of digital literacy skills. In addition, it is noteworthy that third and fourth grade pre-service teachers responded to the questions expressed at a user level suitable for novice level. It is recommended that educators should be aware of these problems and appropriate curricula should be developed with these problems in mind.

Key Words: European digital competence framework, digital literacy, careers, ceit, prospective teachers.

INTRODUCTION

The changes and developments resulting from the rapid development of information and communication technologies are reshaping every aspect of our lives. One of the most important outputs of these developments and changes is the Internet, and it has taken an important place in the life of individuals from every group, especially from the beginning of the 21st century to the present. Women, men, children, adults, academics, teachers, health workers, civil servants, pensioners, business owners, those involved in politics, that is, almost everyone has a smart phone, tablet or computer connected to the Internet, and they devote the vast majority of their time to the Internet thanks to these tools (Ogelman, Demirci, & Güngör, 2021).

The world's population has reached 8.01 billion people, according to a report by the international digital marketing firm "We Are Social" from January 2023. 64% of the world's population, or 5.16 billion people, have internet connection. On average, people use the internet for 6 hours and 37 minutes, and 92.3% of users access it through mobile devices. 3 hours and 37 minutes per day are spent online on mobile devices (Dijilopedi, 2023). People are observed to spend the majority of their time online as a result. As a result, it is crucial that people plan their time on the internet and other digital platforms in a way that advances their growth and quality of life.

The concept of digital literacy, which emerged in the period of intense digitalization, has begun to occupy a very important place in line with the development and production needs of individuals. Digital literacy is a comprehensive concept beyond using devices such as phones, computers, and tablets and mastering the software contained in these devices (Karabacak & Sezgin, 2019). The skills that enable a person who can use digital tools to use these tools effectively in digital environments include cognitive, motor, sociological, and emotional skills (Terzi & Işli, 2020). Digital literacy can be defined as a set of multidimensional skills required to find, understand, interpret, analyze, analyze, produce and share new information with other individuals using internet-connected devices such as phones, computers and tablets.

Digital literacy is crucial for teachers and teacher candidates, just as it is for many other professions. Teachers and teacher candidates are expected to teach kids digital literacy in both official and informal settings. Teachers and teacher candidates should be proficient in digital literacy in order to use technology in the classroom and teach people why and how to use it. (Özerbas & Kuranbayeva, 2018; Richardson, Clemons, & Sterrett, 2020; Arslan, 2023). As a result, research should be done to raise the pre-service teachers' levels of digital literacy. The purpose of this study was to assess pre-service teachers' levels of proficiency in the European Digital Competence Framework for digital literacy.

What is the degree of digital literacy abilities of teacher candidates studying in the Department of Computer Education and Instructional Technology (CEIT) according to the European Digital Competence Framework? is the problem that this research is trying to solve.

Restrictions of the Study

1. The study group is only available for the spring semester of the school year 2018–2019.
2. The research's sample is restricted to 16 students who are majoring in education at a university in Western Anatolia.
3. The European Digital Competence Framework-based Digital Literacy Skill Form is the only tool used in the research to collect data (Europass, 2019).

METHOD

The qualitative research method was adopted in this study. Qualitative research is defined as one of the knowledge production processes aimed at understanding and evaluating people's lives, perspectives on events, behaviors and social changes (Strauss & Corbin, 1998). In other words, qualitative research is defined as an effort to capture meaning as a result of a conversation activity with individuals (Arkonaç, 2017). In short, qualitative research is the most appropriate and frequently used method in which we define variables in situations where we do not know the variables and find answers to research questions as a result of investigations (Creswell & Poth, 2016). This study utilized descriptive analysis, a qualitative research method, in this situation. In descriptive analysis, data collected using various data gathering technologies are summarized and interpreted in accordance with specified themes. In order to reflect the opinions of the people questioned or observed in an intriguing way, the researcher frequently uses verbatim quotations. The reader is to be given a summary and interpretation of the results (Yıldırım & Şimşek, 2003).

Participants

The purposive sample method was employed in this study to select the participants. When conducting in-depth research, purposeful sampling is employed to gather data by choosing special cases (Neuman, 2016). Since the purpose of qualitative research is not to generalization, researchers generally do not work with large groups, and in order to provide information for comprehensive research in sample selection, it makes it possible to select rich cases (Patton, 2014). One of the purposive sampling techniques, the criterion sampling approach, was used to select the participants. The goal of the criterion sampling method is to examine every case that satisfies a set of criteria. The researcher may develop the aforementioned criterion or criterion(s) or use a pre-prepared list of criteria (Yıldırım & Şimşek, 2005).

13 of the participants in the study who were contacted using the criterion sample method were undergraduate 4th grade students, while two others were in undergraduate 3rd grade. When the data on the types of high schools graduated by the pre-service teachers participating in the study were analyzed, it was seen that 11 of them graduated from Vocational and Technical Anatolian High School, three from Anatolian High School and one from Science High School. At the same time, according to the information about the departments they studied in high school, six prospective teachers graduated from science program, six prospective teachers graduated from information technologies program, two prospective teachers graduated from web design program and one prospective teacher graduated from network systems program. The goal of setting the criterion in this situation was to assess the likelihood that teacher candidates who were just beginning their undergraduate degree had lower levels of digital literacy than those who use social media and choose teaching as a career.

Data Gathering Instruments

In this study, information was gathered using a semi-structured interview form. When a question concerning the topic of the research project is not defined clearly, the interview form provides an advantage in terms of clarity (Çepni, 2007). Even if the questions in the form are prepared in advance, questions can be added, removed or changed according to the situation of the study. Semi-structured interviews enable the researcher to act according to the relevant situation by asking "probing questions" for the scope of the study depending on the answers given (Bal, 2016). On this situation, care was taken to make the interview questions on the researcher's prepared interview forms plain, intelligible, and straightforward. Two expert opinions were obtained in order to determine how well the prepared form fits the intended goal and to make it clear and applicable. The first expert is a professor who works at a university, and the second is a teacher who has undergone special training in his area of knowledge. The forms were revised after considering the experts' opinions. A pilot study with three future instructors was done in the second stage, and information regarding the issues that were discovered is provided under the appropriate subject. The semi-structured interview form used in the study was called as:

Based on the European Digital Competence Framework, a form for measuring digital literacy skills was created.

The question "What is the level of digital literacy skills of teacher candidates studying at the CEIT department according to the European Digital Competence Framework" served as a model for developing the interview questions for the semi-structured form. The most recent version of the European Digital Competence Framework, DigComp 2.1 (Digital Competence Framework for Citizens), was utilized to create the digital literacy skill form.

Together, the Human Capital and Employment Unit has created DigComp 2.1. The categories specified by the European Digital Competence Framework information processing, communication, content creation, security, and problem-solving were utilized in the study. The study's participant teacher candidates had proficiency levels of Basic user, Independent user, and Sufficient user for the questions posed for each area.

Basic User: This refers to training applicants who possess the knowledge and abilities required at the entry level for each category.

Independent User: This term refers to teacher candidates who possess intermediate capabilities in each category, i.e., abilities to execute tasks on their own.

Sufficient Users: Users who are sufficiently skilled in each category include teacher candidates who possess specialized (high) level skills.

There were 23 questions related to basic user skills, 27 questions related to independent user skills, and 25 questions related to sufficient user skills in the created form. In other words, a total of 75 questions were asked in the form created to determine the digital literacy skill levels of teacher candidates. The researcher organized the responses to the questions provided by the teaching applicants into three levels. "Expert Level," "Development Level," and "Beginner Level" were these. The "5" and "4" measurement and evaluation ratings within the Expert Level were separated. The “5” rating means “I definitely do”, while the “4” rating means “I mostly do”. The Development Level was divided into measurement and evaluation ratings in the form of “3” and “2” within itself. The “3” rating indicates the meaning of “I do it partially”, while the “2” rating refers to the meaning of “I do it occasionally”. The Beginner Level was divided into “1” and “0” measurement and evaluation ratings within itself. A rating of “1” means “I do very little”, while a rating of “0” means “I can't do at all” (Table 1). The purpose of including the “0” or “1” ratings in the form was to determine the skills that a teacher candidate who was in the final year of undergraduate education can do little or nothing. The skills that the teacher candidates do little or not at all are presented in the findings section. The suggestion developed in this context is as follows; The Digital Skills form prepared on the basis of the European Digital Competence Framework should be applied to pre-service teachers at the end of each semester, the competencies of pre-service teachers in the questions should be measured and it should be determined in which questions they have problems. The curriculum should be organized according to the problems identified.

Table 1: Raitings of measurement and evaluation

Expert Level		Development Level		Beginner Level	
5	4	3	2	1	0
I Definitely Do	I Mostly Do	I Partially Do	I Do Occasionally	I Do Very Little	I Can't Do at All

Pilot Implementation Process

In the context of the study, during the pilot implementation of the digital literacy skill form prepared based on the European Digital Competence Framework, it was found some teacher candidates did not know the meaning of some of the concepts in the questions contained in the form, and a solution proposal was developed for this. These concepts can be listed as follows: RSS, Ergonomics, and Methodology.

Data Collection Process

Two expert opinions were sought in order to determine the degree to which the researcher's prepared interview questions suit the intended purpose and to assess their understandability and applicability. One of the specialists was a university professor, and the other was a teacher who had earned his expert status in his area of expertise. The comments from the experts was taken into consideration when organizing the semi-structured interview forms. Before the questions in the semi-structured interview form, which took its final shape, were answered by the teacher applicants, a trial implementation with three candidate teachers was carried out. The academician and the researcher worked jointly to oversee the use of the forms.

Validity and Reliability

One of the most crucial standards for scientific research is validity and dependability, especially in qualitative research. The validity and reliability study carried out in qualitative research, however, is one of the most significant distinctions between it and quantitative research (Yıldırım & Şimşek, 2013). Maxwell (1992), Flinders (1997), Hammersley (1998) and Silverman (2001) stated that researchers conducting qualitative research should not only use methods and techniques related to the subject they are researching, but also conduct validity and reliability studies that will increase the value of the researched subject. To collect thorough data and improve the study's validity and reliability, the researcher devised an interview form for this investigation. After that, professional judgment was consulted to confirm whether or not the form's questions were appropriate. The fact that participation in the study was entirely optional and that they had the option

of declining to answer any questions they felt uncomfortable answering was made very apparent to the participants.

The research process and what was done during the procedure were detailed in order to support the study's external validity. Before the completed form was used, a pilot study with three future teachers was done. For the issues that arose during the pilot application, solutions were established, and the form was used for four weeks by pre-service teachers. Throughout this process, the pre-service teachers' written reflections were documented. A full explanation of the methodology, study subjects, data gathering methods, tools, and processes, as well as how the results were created, was also given.

All research findings were presented directly, objectively, and without any interpretation for the internal reliability study. The researcher copied the collected data to Microsoft Excel for this reason, and after rereading, coding categories were made. Content and descriptive analysis resulted in the conversion of coding categories into open coding. The consistency between the researcher and the expert (coder) was measured to assess the coding's dependability. To test the consistency of the coders from the participant's written form, three pre-service teachers' written forms were selected and replicated. The researcher and the subject-matter expert then evaluated the selected forms objectively and created explanatory codings suitable for content analysis. Therefore, by contrasting the codes that were independently coded by the researcher and the expert, the consistency between the coders was ascertained.

Data Analysis Process

Finding the concepts and linkages required to make the acquired data understandable is the definition of content analysis's goal (Yıldırım & Şimşek, 2005). In order to compare the codes, consistency was calculated. Following this procedure, the responses to the questions in the form chosen for the evaluation of open coding were analyzed and classified as "agree" or "disagree" using checkboxes. When the researcher and the expert conducted their examinations, it was agreed that there was agreement if they both selected the same answer to the pertinent question and disagreement if they selected a different answer. Miles and Huberman's (1994) consistency percentage (reliability) formula was used to determine the reliability of the content analysis. The consistency percentage is calculated as follows:

$$\text{Reliability} = \text{Consensus} / (\text{Consensus} + \text{Disagreement}) \times 100$$

According to Yildirim and Simsek (2003), when the consistency percentage in the calculation of reliability in a qualitative study is 70%, it means that the study has reached the reliability percentage. In this study, the fact that the rate in the form was 70% and above showed that the

consistency between the coders was sufficient. After ensuring consistency between the researcher and the expert, abbreviations of code units created for meaning were placed in square brackets in the table, and abbreviations created in the opinions of teacher candidates were included. Due to the fact that teacher candidates expressed opinions in accordance with more than one category, the total number of opinions might be different.

FINDINGS

The digital literacy abilities of the teacher candidates taking part in this study were assessed using a form created based on the European Digital Competence Framework. These five primary themes were "Information Processing," "Communication," "Content Creation," "Security," and "Problem-Solving." Sub-themes were identified in order to assess each primary theme developed for the study's level of competence. 'Basic User,' 'Independent User,' and 'Sufficient User' were the names of these sub-themes. The number, percentage, and total values related to the answers given by the participants to the questions belonging to the 'Basic User' level are presented in Table 2.

As shown in Table 2., of the 367 responses provided by the 16 teacher candidates who took part in the study in response to the 23 basic user-level questions on the information processing, communication, content creation, security, and problem-solving themes, 78.47% were at the expert level, 19.89% were at the development level, and 1.63% were at the beginner level.

Table 2: Information about basic user skills

	Levels	Number	%	Total
Expert	5	204	55.59	78.47
	4	84	22.89	
Development	3	61	16.62	19.89
	2	12	3.27	
Beginner	1	0	0.00	1.63
	0	6	1.63	

As a result, when the 367 responses given by the teacher candidates to the questions associated with the skills they should know at the entry-level in the Digital Literacy Skill form were examined, it was seen that 63 responses were related to Communication category, 64 responses were related to Computing category, 64 responses were related to Content Creation category, 80 responses were related to Problem-Solving category, and 96 responses were related to the Security category. In addition, it was found that with 78.47%, the skills that teacher candidates should know at the entry

level were at the expert level (*i.e.,* at the top level). In addition, it is noteworthy that the teacher candidates answered six questions at the beginner level and 73 questions at the developmental level. These questions were included in the basic user categories.

In Table 3., the participants' responses to the questions from the 'Independent User' level are broken down by number, percentage, and total value.

In Table 3., it was found that 63.57% of the 431 answers provided by 16 teacher candidates to 27 questions from the independent user level on the topics of computing, communication, content creation, security, and problem-solving were at the expert level, 28.07% were at the development level, and 8.35% were at the beginner level.

Table 3: Information about independent user skills

	Levels	**Number**	**%**	**Total**
Expert	5	155	35.96	63.57
	4	119	27.61	
Development	3	86	19.95	28.07
	2	35	8.12	
Beginner	1	22	5.10	8.35
	0	14	3.25	

As a result, when the 461 responses given by the teacher candidates to the questions at an intermediate level (that is, questions about the skills that he/she should be able to do on his own) in the Digital Literacy Skill form were examined, it was seen that 79 responses were related to Communication category, 80 responses were related to Computing category, 80 responses were related to Content Creation category, 80 responses were related to Problem-Solving category, and 112 responses were related to the Security category. In addition, it was found that with 63.57%, the skills that teacher candidates should do at the intermediate level (*i.e.,* skills that he/she should be able to do on his own) were at the expert level (*i.e.,* at the top level). Moreover, it is noteworthy that the teacher candidates answered 36 questions at the beginner level and 121 questions at the development level. These questions were included in the independent user categories.

In Table 4., the participants' responses to the questions at the "Sufficient User" level are broken down by number, percentage, and total value.

As shown in Table 4., of the 399 responses provided by 16 teacher candidates to 25 questions from the sufficient user level on the topics of computing, communication, content creation, security, and problem-solving, 49.12% were at the expert level, 43.11% were at the development level, and 7.77% were at the beginner level.

Table 4: Information about sufficient user skills

	Levels	Number	%	Total
Expert	5	102	25.56	49.12
	4	94	23.56	
Development	3	115	28.82	43.11
	2	57	14.29	
Beginner	1	19	4.76	7.77
	0	12	3.01	

As a result, when the 399 responses given by the teacher candidates to the questions that they should know at a high level in the Digital Literacy Skill form were examined, it was seen that 48 responses were related to Problem-Solving category, 64 responses were related to Communication category, 80 responses were related to Content Creation category, 96 responses were related to Computing category, and 111 responses were related to the Security category. In addition, it was found that with 49.12%, the skills that teacher candidates should know at a high level were at the expert level (*i.e.,* at the top level). Moreover, it is noteworthy that the teacher candidates answered 31 questions at the beginner level and 172 questions at the developmental level. These questions were included in the independent user categories.

When all the main themes were evaluated in general, it was seen that nine teacher candidates were at the expert level, five teacher candidates were at the development level, and two teacher candidates were at the beginner level. This shows that teacher candidates were experiencing problems with the questions expressed above about this situation. Therefore, it is recommended that educators should be informed about these questions and carry out studies related to them.

CONCLUSION, DISCUSSION AND RECOMMENDATIONS

The five primary themes found in the digital literacy skill form created using DigComp 2.1, the most recent iteration of the European Digital Competence Framework, were utilized to analyze the digital literacy abilities of the teacher candidates taking part in the study. Information processing,

communication, content creation, security, and problem-solving are some of these themes. Sub-themes were identified in order to assess the competency level of each primary theme developed during the study. 'Basic User,' 'Independent User,' and 'Sufficient User' were the sub-themes created from the determined sub-themes.

According to the answers given to the questions in the "Basic User" sub-theme, 1.63% of the teacher candidates who took part in the study were at the beginning level, 19.89% were at the development level, and 78.47% were at the expert level.

According to the answers given to the questions in the "Independent User" sub-theme, 63.57% of the teacher candidates who took part in the study were at the expert level, 28.07% were at the development level, and 8.35% were at the beginner level.

According to the answers given to the questions posed under the sub-theme of "Proficient User", 49.12% of the pre-service teachers participating in the study were at the expert level, 43.11% at the development level, and 7.77% at the beginner level.

In the literature, Cetin (2016) concluded that the internet usage frequency of an individual causes a positive increase in the digital literacy level. He stated that increasing the computer usage time increased the individual’s experience with technological tools. He emphasized that over time, the increasing knowledge and experiences of the individual would have a significant effect on increasing digital literacy skill levels. In a study by Kozan and Ozek (2019) with teacher candidates, it was discovered that the degree of digital literacy was high and that it grew with the amount of time spent using computers. In a different study that looked at teacher candidates' levels of digital literacy in Turkey, it was found that teacher candidates believed they had high levels of digital literacy and that they were sufficient (Ozerbas & Kuralbayeva, 2018). The level of digital literacy among teacher candidates was found to be intermediate in Yontar's (2019) survey of elementary school and social studies teacher candidates.

It may be concluded from the research's findings and literature that the teacher candidates who took part in it possess sufficient levels of digital literacy. It is noticeable, nonetheless, that their degree of proficiency in the questions posed concerning the theme of content production is at the development stage. Additionally, it was noted that teacher candidates in the 3rd and 4th grade of undergraduate studies had improved digital literacy abilities.

After analyzing the data gathered using the form developed in accordance with the European Digital Competence Framework, it was found that, in terms of digital literacy skills, nine teacher candidates were at the

expert level, five teacher candidates were at the development level, and two teacher candidates were at the beginner level. Additionally noteworthy is the fact that undergraduate third- and fourth-grade teacher candidates respond to questions that are phrased at a novice-appropriate user level. The questions that our teacher applicants struggled with are listed in the findings section. It is advised that educators are aware of these problems and that suitable curricula be developed with these problems in mind.

Recommendations

1. This study used a qualitative research design for its execution. Future studies could employ different variables and be quantitative or mixed pattern study.
2. Teacher candidates who were enrolled in the CEIT department's continuing education participated in the study. Students studying computer technology at vocational high schools and teacher candidates who are pursuing their studies in other disciplines may also participate.
3. Teachers who have graduated from the CEIT department should take an active role in raising digitally literate individuals. In this context, it is necessary that teachers of other branches should not teach the information technology course, except for teachers who graduated from the CEIT department.
4. A separate study can be carried out on each theme in which the levels of usage of digital skills are determined.
5. The scope of the course given to teacher candidates related to digital literacy levels can be expanded.

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Genişletilmiş Özet

Bilgi ve iletişim teknolojilerinin zamanla gelişmesi ve güncellenmesi ile oluşan değişim ve gelişmeler hayatımızın her alanını yeniden şekillendirmektedir. Bu gelişme ve değişmelerin en önemli çıktılarından birini de internet oluşturmaktadır özellikle 21. yüzyılın başından günümüze kadar her gruptan bireyin yaşamında önemli bir yer edinmiştir.

Uluslararası dijital pazarlama firması olan We Are Social'ın Ocak 2023 tarihli raporuna göre dünya nüfusu 8.01 milyara ulaştı. Dünya nüfusunun %64'ü, yani 5,16 milyar kişi internet bağlantısına sahiptir. İnsanlar ortalama 6 saat 37 dakika internet kullanıyor ve kullanıcıların %92,3'ü internete mobil cihazlar üzerinden erişim sağlamaktadır. Günde 3 saat 37 dakika mobil cihazlarda çevrimiçi olarak geçirilmektedir (Dijilopedi, 2023). Sonuç olarak insanların vakitlerinin büyük bir çoğunluğunu internette geçirdiği görülmüştür. Bu bağlamda insanların internet ve dijital platformlarda geçirdikleri zamanı bireyin gelişimine ve yaşamına katkı sağlayacak şekilde düzenlenmesi çok büyük önem taşımaktadır. Günümüzde dijitalleşmenin yoğun olarak görüldüğü süreçte, bireylerin gelişiminde ve üretkenliğinde ihtiyaç duydukları becerilerin arasında dijital okuryazarlık önemli bir yer edinmeye başlamıştır. Dijital araçları kullanabilen kişinin bu araçları dijital ortamlarda etkili kullanmasını sağlayan becerileri (bilişsel, motor, sosyolojik ve duygusal becerileri) kapsamaktadır (Terzi ve Gülgin İşli, 2020). Dijital okuryazarlığın, birçok meslek grubunda olduğu gibi öğretmenlerin ve öğretmen adayları için de çok önemli olduğu söylenebilir. Öğretmenlerin ya da öğretmen adaylarının dijital okuryazarlık becerilerine sahip olması aynı zamanda bu becerileri formal ve informal yollarla öğrencilere kazandırması beklenmektedir. Eğitimde teknolojinin kulllanılması ve bireylere teknolojinin neden ve nasıl kullanılacağının öğretilebilmesi için öğretmenlerin ve öğretmen adaylarının dijital okuryazarlık yetkinliğine sahip olması gerekmektedir (Özerbaş ve Kuralbayeva, 2018).

Araştırmada öğretmenlerin ve öğretmen adaylarının dijital okuryazarlık becerilerinin geliştirilmesine yönelik çalışmaların yapılması gerekliliği ortaya çıkmıştır. Bu çalışmada Avrupa Dijital Yeterlilik Çerçevesine göre öğretmen adaylarının dijital okuryazarlık beceri düzeylerinin belirlenmesi amaçlanmıştır. Araştırmanın amacı doğrultusunda "BÖTE bölümünde öğrenim görmekte olan öğretmen adaylarının Avrupa Dijital Yeterlilik Çerçevesine göre dijital okuryazarlık becerilerinin düzeyleri nasıldır?" sorusuna çözüm bulunması hedeflenmektedir. Çalışmanın katılımcılarını 2018 - 2019 eğitim öğretim yılının bahar yarıyılında Batı Anadolu'da bulunan bir

üniversitenin eğitim fakültesine devam etmekte olan 16 öğretmen adayından (beş kadın ve 11 erkek) oluşmaktadır. Veri toplama aracı olarak yarı yapılandırılmış görüşme formu kullanılmıştır. Araştırmanın problem cümlesi yarı yapılandırılmış görüşme formundaki soruların oluşmasına öncülük etmiştir. Dijital okuryazarlık beceri formu oluşturulurken; Avrupa Dijital Yeterlilik Çerçevesinin en son sürümü olan DigComp 2.1 [Digital Competence Framework for Citizens] kullanıldı. Çalışmaya katılan öğretmen adaylarının Avrupa Dijital Yeterlilik Çerçevesinin en son sürümü olan DigComp 2.1'e göre hazırlanan rapora göre dijital okuryazarlık beceri formunda kullanılan *'Bilgi İşlem'*, *'İletişim'*, *'İçerik Oluşturma'*, *'Güvenlik'*, *'Problem Çözme'* olmak üzere beş ana temada incelenmiştir. Çalışmada oluşturulan her ana temaya ait yeterlilik düzeyini belirlemek amacıyla alt temalar belirlenmiştir. Belirlenen alt temalar *'Temel Kullanıcı'*, *'Bağımsız Kullanıcı'* ve *'Yeterli Kullanıcı'* olarak alt temalara ayrılmıştır. Elde edilen bulgular ve alanyazına bakıldığında öğretmen adaylarının dijital okuryazarlık becerilerinin kullanımının araştırmaya katılan öğretmen adaylarında yeterli düzeyde olduğunu söylemek mümkündür. Fakat araştırmaya katılan öğretmen adaylarının içerik oluşturma temasına ait sorulan sorulardaki yeterliliğinin gelişim düzeyinde olduğu dikkat çekmektedir. Ayrıca Lisans 3. ve 4. Sınıfa devam eden öğretmen adaylarının dijital okuryazarlık becerilerinde gelişim göstermekte olduğu görülmüştür.

Extended Abstract

The changes and developments that occur with the development and updating of information and communication technologies over time reshape every aspect of our lives. One of the most important outputs of these developments and changes is the internet, which has gained an important place in the lives of individuals from every group, especially from the beginning of the 21st century to the present day.

According to the January 2023 report of We Are Social, an international digital marketing firm, the world population has reached 8.01 billion. 64% of the world population, or 5.16 billion people, have an internet connection. People use the internet for an average of 6 hours 37 minutes and 92.3% of users access the internet via mobile devices. 3 hours and 37 minutes a day are spent online on mobile devices (Dijilopedi, 2023). As a result, it has been observed that people spend most of their time on the internet. In this context, it is of great importance to organize the time people spend on the internet and digital platforms in a way that contributes to the development and life of the individual. Today, in the process of intensive digitalization, digital literacy has started to gain an important place among the skills that individuals need in their development and productivity. It covers the skills (cognitive, motor, sociological and emotional skills) that enable the person who can use digital tools to use these tools effectively in digital environments (Terzi & Gülgin İşli, 2020). It can be said that digital literacy is very important for teachers and pre-service teachers as it is for many professional groups. Teachers or prospective teachers are expected to have digital literacy skills and at the same time, they are expected to provide these skills to students in formal and informal ways. In order to use technology in education and to teach individuals why and how to use technology, teachers and pre-service teachers should have digital literacy competencies (Özerbaş & Kuralbayeva, 2018).

In the research, it was revealed that studies should be carried out to improve the digital literacy skills of teachers and pre-service teachers. In this study, it was aimed to determine the digital literacy skill levels of pre-service teachers according to the European Digital Competence Framework. In line with the aim of the study, it is aimed to find a solution to the question "How are the levels of digital literacy skills of pre-service teachers studying in the Department of ITET according to the European Digital Competence Framework?". The participants of the study consisted of 16 pre-service teachers (five female and 11 male) attending the faculty of education of a

university in Western Anatolia in the spring semester of the 2018-2019 academic year. A semi-structured interview form was used as a data collection tool. The problem statement of the research led to the questions in the semi-structured interview form. While creating the digital literacy skills form; DigComp 2.1 [Digital Competence Framework for Citizens], the latest version of the European Digital Competence Framework, was used. According to the report prepared according to DigComp 2.1, the latest version of the European Digital Competence Framework, the pre-service teachers participating in the study were examined in five main themes: 'Information Processing', 'Communication', 'Content Creation', 'Security', 'Problem Solving', which were used in the digital literacy skills form. Sub-themes were determined in order to determine the level of proficiency for each main theme created in the study. The sub-themes were divided into 'Basic User', 'Independent User' and 'Proficient User'. Considering the findings and the literature, it is possible to say that the use of digital literacy skills of the pre-service teachers participating in the study is at an adequate level. However, it is noteworthy that the competence of the pre-service teachers participating in the study in the questions asked in the theme of content creation is at the development level. In addition, it has been observed that pre-service teachers who continue their 3rd and 4th year of undergraduate education show improvement in their digital literacy skills.