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# Attitudes of Turkish Language Teaching and Primary Education Pre-Service Teachers towards Digital Reading

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**SUMMARY**

The study aims to investigate the attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading in terms of various variables. The study was carried out in the relational survey model, one of the quantitative research methods. The sample of the study consisted of a total of 330 pre-service teachers, 230 of whom were female, and 100 were male, studying in the departments of Turkish Language Teaching and Primary Education programs at the Faculty of Education of Bartın University. The study analysed the digital reading attitudes of pre-service teachers according to their gender, departments, grade level, GPA, average daily digital reading time, having a personal computer and the average number of books read monthly. The data were collected by the "Attitude Scale Towards Digital Reading" developed by Yurdakal and Susar Kırmızı (2021). SPSS Package Program was used to analyse the data. Non-parametric tests were performed in the data analysis because normality could not be achieved in the distribution of the data. Mann-Whitney U tests were run for two variables, and Kruskal Wallis tests were run for more than two variables. According to the research findings, there was no significant difference in the digital reading attitudes of Turkish language teaching and primary education pre-service teachers according to gender, department, grade level, GPA, average daily digital reading time, having a personal computer, and the average number of books read monthly. It was determined that there was a significant difference in favour of primary education pre-service teachers only in the dimension of digital reading preferences of the scale.

**Keywords:** Reading skills, digital reading, attitude, pre-service teachers.

## INTRODUCTION

The rapid growth of science and technology today leads to major changes in the production, distribution and sharing of information, and all these developments also affect the field of education (Güneş, 2010). After computer technology emerged and the internet network took on a new role of storing and distributing information, some changes have been experienced in the field of books and, accordingly, the act of reading (Yurdakal & Susar Kırmızı, 2021). According to Lin et al. (2021), the widespread use of digital resources, especially in the last decade, has considerably affected reading behaviour. The emergence of digital media and the growing collection of digital documents affects reading profoundly in today's world. Also, digital media contributes to a transformative change in the act of reading every day (Braslavski et al., 2016; Liu, 2005). As a result, it is thought that reading in the mobile digital environment has great potential and offers new opportunities in learning environments (Faria et al., 2014). This new digital environment that has emerged in the field of reading has inevitably attracted the attention of many researchers and scientists (Karim & Hasan, 2007). Especially with the popularity of e-readers in recent years, digital reading has become an important research topic in contemporary information science and the focus of numerous studies. (Liu, 2012).

Digital reading is defined as reading texts online or offline from technological devices such as smartphones, tablets or computer screens (Ebrahimi, 2016), the process of reading and understanding texts in electronic environments (Bulut & Karasakaloğlu, 2018), performing reading activities by means of digital media forms such as computers, blogs or mobile phones (Lin et al., 2021), a multidimensional series of meaning-making experiences in which readers engage with multiple texts for specific purposes in different contexts (Coiro, 2020). Digital reading functions as an extension of paper (Cardoso et al., 2014) and therefore print reading versus digital reading is not considered a dilemma. Digital reading can also be seen as 'extensive' reading, as it builds on print reading (Reiber-Kuijpers et al., 2021) because digital reading encompasses both adapted print reading and unique digital reading activities (Li, 2020). According to Odabaş (2017), digital reading, an action that can be carried out on a wide variety of digital tools, can be performed on many different kinds of information tools, from laptop computers to tablets and e-book readers. In addition, some other tools such as televisions, electronic billboards and kiosks offer the digital reading opportunity. With the internet connection, these tools have begun to offer more intensive reading.

One of the new trends of the 21st century has been the gradual change of reading habits. The increase in digital information and documents has significantly affected both the act of reading and the behaviour of the reader (Shimray et al., 2015). According to Beazley (2016), reading activities performed on paper in the past are mostly

done on desktop and laptop computers, phones and tablets today. The most distinctive feature differentiating between digital and traditional reading is that reading is performed on the screen. The reading tool affecting the act of reading has shown multifaceted effects on human behaviour over time and has resulted in changes in reading behaviour (Odabaş et al., 2018). Thus, readers gradually develop screen-based reading behaviours in an increasingly digital environment and employ various strategies to cope with broad information environments (Liu, 2012). Gartner Inc. (2011) found that the time people spend reading on the screen has now almost become equal to the time they spend reading from printed books. Akkaya and Çıvğın (2020) underlined that many studies conducted in recent years demonstrated that digital materials are used more widely by, especially among young people, for reading purposes rather than printed materials and maintained that reading materials are rapidly shifting towards digital materials, which are also a necessity of the age, among adults and elderly individuals. According to Liu and Huang (2008), who point out that readers' preferences for digital reading and reading on paper are contextual, people prefer digital reading more while reading short documents such as e-mail, reading for news and entertainment purposes, or when they are bored. Moreover, individuals prefer to read on paper when they need to read long documents, when they need serious and in-depth reading, read difficult or scientific documents, and need to take notes. In addition to the reading purposes of individuals, it can be said that the positive/negative aspects of digital reading and reading on paper affect the reading preferences of people.

Many recent studies have found that despite some similarities in the process of reading in both digital reading and print reading methods (Ebrahimi, 2016), online reading and print reading differ significantly in a wide spectrum (Liu, 2012). While Beazley (2016) shows mobility, portability, accessibility and search ability as the most important features of reading on digital devices, according to Ebrahimi (2016), digital reading allows students to choose materials according to their proficiency levels and interests. Nichols (2016) underlines that in digital reading, the text can be supplemented with additional resources such as feedback and dictionaries, and the information on the screen can also be utilised from different sources. In addition, compared to printed materials, materials prepared for on-screen reading are both more economical and can be distributed easily, quickly and cheaply. Vandenhoek (2013) emphasizes that one of the important opportunities offered by digital reading is integrating questions into a text and states that when print reading, questions are usually separated from the text or given at the end of the text, whereas it is possible to integrate questions in digital devices at various places in the text. Therefore, the digital reading experience includes not only the visual design of the content but also the format and reading system that visualises the format. It also includes the planning and improving the design journey that includes the reader's behaviour as well (Ertürk & Üzümcü, 2018). For this reason, the individual who will perform digital reading needs to be ready for what they read in terms of both mental and informatics skills (Odabaş, 2017). Achieving the highest level of efficiency in digital reading relies on having digital skills.

In digital reading, which is based on the continuous interaction of three components, the reader, the text and the environment (Güneş, 2010), the information sought in the digital devices is found, read and applied more quickly. Thus, reading and functionality are utilised at the highest level. An individually designed and interactive reading takes place on the screen (Akkaya & Çıvğın, 2020). According to Yurdakal and Susar Kırmızı (2021), who highlight that digital reading affects more than one sense organ due to the features such as moving images and sounds, it can be said that digital reading offers many options in the meaning-making process. Expressing that there is a direct interaction between the reader and the screen in digital reading, Güneş (2010) emphasizes that there is an interaction between reader's goals, mental structure, feelings, thoughts and the format, content, subject and readability of the text presented on the screen. The reader actively reads the text, understands it, skips some places, searches for new information, guesses, questions and organizes the information by connecting the pieces in their mind. According to Başaran (2014), who underlines that digital reading increases the interaction between the text and the reader, the reader will be able to take many notes on the text without any difficulty, as well as make as many changes on the text as they want without any difficulty and edit the text as they wish.

As is the case with every technological change, the spread of digital reading poses some challenges as well as offering various opportunities to educators and students (Vandenhoek, 2013). Although digital reading has some advantages over reading in print/on paper, it is a fact that it also has negative aspects. Güneş (2010) mentions that in digital reading, the presentation of the text on the screen affects the processes of seeing, understanding and mentally visualising elements such as page layout, content, and logical ties. Also, the author's purpose, narration style, text type, and font type states that eye movements change in digital reading and applying some reading techniques becomes difficult, and the processes of understanding and mental visualisation become challenging. According to Dyson and Haselgrove (2001), the slide of the pages while reading the texts on the screen negatively affects comprehension. Maden (2012) states that the load on the brain increases because the text is seen in fragments in on-screen reading, and while this situation improves mental skills, it increases the working speed of the mind and causes mental fatigue, on the other hand. Underscoring that the reader may not consider reading on the screen as a serious job and may prefer the sense of touch in printed materials, and therefore digital reading may be useless in very long texts, Nichols (2016) emphasizes that digital reading is

more challenging and tiring cognitively, and as a result, the cognitive load is increased. Digital reading causes physical as well as cognitive fatigue. While reading on screen, since the moving pages badly affect the natural movements of the eyes and make it more difficult to move from left to right (Güneş, 2010), eye fatigue is more common than reading on paper (Dillon, 1992). In addition, in digital reading, the eyes and the mind become tired, and general fatigue occurs gradually because the screen surface reflects the light, there is constant glare, the eyes selectively read the texts, and the mind brings the information together piece by piece (Güneş, 2010). According to Akkaya and Çıvğın (2020), when reading printed products, it is possible to perceive the general structure of the text and visual elements together, review the titles in general, have a good command of the text and formulate ideas. However, digital texts are changeable with their moving and dynamic structures. While a certain part of a text is seen on the screen, it takes much effort to be able to see the rest of it. For this reason, it is necessary to develop skills such as high-level attention, comparison and thinking in order to achieve comprehension of digital materials. In addition to these skills, one of the ways to be successful in digital reading is to have a positive attitude towards this type of reading.

The concept of attitude is a psychological structure that is difficult to understand (McKenna et al., 2012). The word attitude comes from the root "aptus" meaning "harmony" in Latin and is defined as the form of pre-perception that a person has in the face of any subject, object, situation, or event (Temizkan & Sallabaş, 2009), a person's continuous evaluation of an object, person or idea from a positive to negative manner (Albarracin & Shavitt, 2018), a combination of emotions and behaviours related to a particular learning situation (Stanfield, 2008). Attitude is extremely important because it has a large place in our mental world (Maio & Haddock, 2007). For this reason, the power of attitudes in human life has been the focus of many studies for many years, especially in psychology and relevant fields (Howe & Krosnick, 2017). One of the areas where the attitude is effective is the reading skill, which is one of the basic language skills.

Reading attitude is seen as a complex theoretical structure (Yamashita, 2004) and is defined as a tendency to respond positively or negatively to reading (Swalander & Taube, 2007) and a learned predisposition to respond to reading activity positively or negatively in a consistent manner (Broeder & Stokmans, 2013). Reading attitude is an integral part of learning in developing and using lifelong reading skills (Roberts & Wilson, 2006). Reading attitude is of vital importance for the learning success of students (Chotitham & Wongwanich, 2014), increases the level of participation of students in classroom reading activities with the amount and variety of reading topics (Logan & Johnston, 2009), and is an important factor that determines the individual's interest, commitment and motivation towards reading (Maden & Maden, 2016). Studies and practices show that positive reading attitudes support the concept of high motivation (Sperling & Head, 2002).

In today's world, where individuals read more digitally than reading traditionally, it is thought that teachers should use both printed and digital materials while improving students' attitudes towards reading (Conradi et al., 2013). According to Sallabaş (2008), who stated that students should gain a positive perspective towards reading activity within the education process, it is not possible to help an individual gain a positive attitude towards reading only through education at school. Social and environmental factors that encourage reading are also effective in the formation of reading attitude (Lim et al., 2015). Therefore, a social life surrounded by books in both physical and online spaces should be encouraged for children and young people to encourage them to read more printed and digital texts (Loh & Sun, 2018).

The positive or negative attitudes that students might develop towards reading can be determinative on their willingness or reluctance to read reading materials (Yaman & Dağtaş, 2016). Positive reading attitudes lead to positive reading experiences, which in turn provides higher academic performance (Karim & Hasan, 2007). According to Akkaya and Özdemir (2013), a positive reading attitude can affect the selection of reading material before reading and how much the individual benefits from the reading material in the reading process, as well as the behavioural changes that are expected to be acquired after reading in line with the educational goals. According to Güneş and Susar Kırmızı (2014), who emphasizes that students' positive attitudes towards reading enable them to read continuously and improve their reading habits, their positive attitude increases students' success and facilitates their self-development. For this reason, in the process of developing reading habits, it should be prioritised to determine the attitudes that students develop towards reading.

Attitudes are effective and important in acquiring and developing reading skills on paper and developing digital reading skills. Although the digital reading process bears some similarities to the process of reading on paper, it also requires different knowledge and skills. According to Yurdakal and Susar Kırmızı (2021), it can be said that the use of knowledge and skills in the digital reading process depends on the attitude of the person. Since digital texts are richer and contain more complex components and environments than printed texts, Pardede (2019) states that a person's proficiency in reading on paper strategies will not guarantee their success in reading comprehension of digital texts. From this point of view, it can be said that there may be differences between attitudes towards printed texts and attitudes towards digital texts.

A literature review on digital reading skills show that there are studies that deal with various aspects of digital reading. The aim of these studies was to reveal the effect of digital or print reading on reading comprehension (Başaran, 2014; Baştuğ & Keskin, 2012; Batluralkız, 2018; Dağtaş, 2013; Ercan Güven & Ateş, 2015; Kuru, 2018; Macit & Demir, 2016; Özen, 2014), digital reading habits/tendencies of teachers or students (Akcaoğlu Saydım, 2017; Altunkaynak & Çağımlar, 2021; Boz, 2018; Bulut & Karasakaloğlu, 2019; Elkatmış, 2021; Elkıran, 2021; Kucirkova & Littleton, 2016; Lee, 2018; Lin et al., 2021; Loh & Sun, 2019; Maden, 2018; Maden, 2019; Odabaş et al., 2018; Qutab et al., 2017; Şahenk Erkan et al., 2015; Vandenhoek, 2013) and their views on digital reading (Azizoğlu & Okur, 2018; Çelik et al., 2019; Doğan Polat, 2018; Elkatmış, 2018; Karakoç Öztürk, 2021; Maden, 2012; Yamaç, 2019), digital reading competencies of students at various education levels (Çıvğın, 2020), digital reading self-efficacy perceptions of students (Ceylan & Çiçekli Koç, 2021; Gömleksiz et al., 2013; Ulu & Zelzele, 2018; Yılmaz 2019) and digital reading attitudes (Alieto et al., 2020; Allen, 2013; Bulut & Susar Kırmızı, 2021; Çelik, 2015; Çelik et al., 2021; Demirci et al., 2021; Divya & Mohamed Haneefa, 2020; Jang et al., 2021; Maden & Maden, 2016; Soyuçok & Mazman Akar, 2018; Strother et al., 2009; Susar Kırmızı & Güneş, 2015; Yıldız & Keskin, 2016). In addition, there are scale development studies ontopics including digital reading attitude (Güneş & Susar Kırmızı, 2014; Susar Kırmızı, 2017; Yaman & Dağtaş, 2016; Yurdakal & Susar Kırmızı, 2021), digital reading self-efficacy perception (Akkaya & Çıvğın, 2020; Ulu, 2018) digital reading tendencies (Bulut & Karasakaloğlu, 2018). A literature review determined that the studies on digital reading attitudes in the country are limited to primary, secondary and high school students, and no study is available with pre-service teachers. Based on the problem statement, "What are the attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading and do these attitudes differ according to various variables?" the sub-problems of the present study were formed as follows:

1. What are the attitude levels of Turkish language teaching and primary education pre-service teachers towards digital reading?

2. Do the attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading differ according to gender?

3. Do the attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading differ according to the departments of students?

4. Do the attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading differ according to the grade level?

5. Do attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading differ according to their GPA?

6. Do the attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading differ according to the average daily digital reading time?

7. Do the attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading differ according to whether or not they have their own computers?

8. Do the attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading differ according to the average number of books they read per month?

## METHOD

This section of the study presents information about the research model, study group, data collection instrument, data collection and analysis.

### Research Model

This study, which aims to explore the attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading according to various variables, was carried out with the relational survey model, one of the quantitative research patterns. This model, which is carried out using questionnaires or interview protocols, with a sample selected from the target population in line with the topics of interest, offers an insight into the changes that occur over time as well as a certain situation that occurs at a specified time interval (Christensen et al., 2020). Typically, in this model, data is collected to describe the nature of conditions existing at a particular time or moment, set standards against which these conditions can be compared, or reveal relationships that exist after certain situations (Cohen et al., 2021). According to Fraenkel and et al. (2012), survey studies have following three qualifications:

Information is collected from a group of people in order to describe some aspects or characteristics (such as abilities, opinions, attitudes, beliefs, and/or knowledge) of the population of which that group is a part.

The main way in which the information is collected is through asking questions; the answers to these questions by the members of the group constitute the data of the study.

Information is collected from a sample rather than from every member of the population.

**Sampling**

The sample of the study consists of 330 pre-service teachers studying in the 1st, 2nd, 3rd and 4th grades of Turkish Language Teaching and Primary Education programs at Bartın University. Demographic information for the participants in the study group is shown in Table 1.

Table 1. Demographic Information for the Sample

| Variables | Criteria | N | % |
|---|---|---|---|
| Gender | Female | 230 | 69.7% |
| | Male | 100 | 30.3% |
| Department | Turkish Language Teaching | 175 | 53% |
| | Primary education | 155 | 47% |
| Grade Level | 1st Grade | 96 | 29.1% |
| | 2nd Grade | 73 | 22.1% |
| | 3rd Grade | 77 | 23.3% |
| | 4th Grade | 84 | 25.5% |
| GPA | 3.00 and below | 103 | 31.2% |
| | 3.01- 3.50 | 163 | 49.4% |
| | 3.51 and above | 64 | 19.4% |
| Average Daily Digital Reading Time | 0-2 hours | 98 | 29.7% |
| | 3-4 hours | 117 | 35.5% |
| | 5 hours and above | 115 | 34.8% |
| Having a Personal Computer | Yes | 251 | 76.1% |
| | No | 79 | 23.9% |
| Average Number of Books Read Monthly | 0-2 | 175 | 53% |
| | 3-4 | 118 | 35.8% |
| | 5 and above | 37 | 11.2% |

As shown in Table 1, the sample consisted of 230 (69.7%) female and 100 (30.3%) male participants and 175 (53%) Turkish Language Teaching and 155 (47%) Primary Education pre-service teachers. 103 (31.2%) students among 96 (%29.1)1st grade students, 73 (22.1%) 2nd grade students, 77 (23.3%) 3rd grade students, 84 (25.5%) 4th grade students had a GPA of 3,00 and below, 163 of them (%49.4) had a GPA between 3.01-3.50 and 64 (%19.4) of them had a GPA of 3.51and above. Of those in the sample, 98 (29.7%) read digitally for 0-2 hours on average a day, 117 (35.5%) for 3-4 hours, and 115 (34.8%) for 5 hours or more. Of the 251 (76.1%) participants who had their own computer and 79 (23.9%) who did not have their own computer, 175 (53%) of them read 0-2 books on average a month, 118 (35.8%) read 3- 4 and 37 (11.2%) read 5 or more books.

**Data Collection Instrument**

The data collection instrument of the study is “Attitude Scale Towards Digital Reading” developed by Yurdakal and Susar Kırmızı (2021) for pre-service teachers. This section provides information about the development process of the scale.

In the process of developing the measurement tool, first of all, a literature review was conducted, and an open-ended question form was prepared for pre-service teachers about digital reading and their opinions on the subject were obtained. In the light of the data obtained from the literature review and the statements of the pre-service, the items were created, and they were collected in a pool. The draft scale consisting of 40 items was presented to the expert opinion, and after the corrections, 3 items were removed from the measurement tool, and the measurement tool was finalised with 37 items before the pilot study was conducted. The pilot study was carried out with pre-service teachers studying in eleven different departments in the education faculties of 2 different public universities in the Aegean Region. In order to determine the factor structure of the scale, both exploratory and confirmatory factor analyses were performed. As a result of the analysis, the Kaiser-Meyer-Olkin (KMO) value of the scale was found to be 0.818; Cronbach's Alpha value was found to be 0.956; Spearman-Brown correlation value was found to be 0.92; Guttman Split-Half value was found to be 0.923; Anova Tukey's Nonadditivity was found to be .000; Hotelling's T-Squared was found to be .000, and Intraclass Correlation Coefficient was found to be .000. Accordingly, the first subscale explained 33.22% of the variance of the scale, whereas the second subscale explained 21.08% of the variance of the scale. The factor item load values of the items in the first subscale ranged from 0.81 to 1-0.535. The factor load values of the items in the second sub-factor ranged from 0.791 to -0.476. The total variance explained by the two factors is 54.30%. As a result of the analyses, each sub-factor in the scale was named. The first sub-factor was named "digital reading characteristics." The second sub-factor was named "digital reading preferences." Since the scale consists of 31 questions and a 5-point Likert scale, each question is scored between 1 and 5, and the highest score that can be

obtained from the scale is 155, and the lowest score is 31. In this context, scores between 31-72 were categorised as the low attitude, scores between 73-114 were categorised as the "moderate attitude," and scores between 115-155 were categorised as the high attitude". Since the scale is in a 5-point Likert type, the score between 1.00-2.33 corresponds to "low" attitude, the score between 2.34-3.67 corresponds to "moderate" attitude, and the score between 3.68-4.00 corresponds to "high" attitude.

**Data Collection and Analysis**

After deciding on the data collection instrument to be employed in the study, the authors who developed the scale were contacted, and first of all, necessary permissions were obtained. Then, the Ethics Committee process was initiated, and the meeting of Bartın University Social and Human Sciences Ethics Committee with protocol number 2022-SBB-0039, dated 10.03.2022 and numbered 5, approved the study. After obtaining the permission of the Ethics Committee, the data collection instrument to be used in the study was rearranged on Google Forms and made ready for application. The data were collected in the last two weeks of March 2022. All data were collected in the classroom environment, on a voluntary basis, during the available course hours. After the researcher gave the necessary information to the participants and the consent forms were collected from those who voluntarily agreed to participate in the study, the pre-service teachers answered the questions on the scale from their personal mobile phones. A total of 330 participants were reached during the data collection process.

The collected data were analysed using the SPSS Package Program. Attitude levels of pre-service teachers towards digital reading were determined using descriptive statistics such as arithmetic mean and standard deviation. The difference in the attitudes of the participants towards digital reading according to gender, the department studied, having a personal computer, were analysed using the Mann-Whitney U Test, one of the non-parametric tests, since normality and other assumptions could not be provided. Likewise, the Kruskal Wallis Test, which is one of the non-parametric tests, was used to determine the differences in pre-service teachers' attitudes towards digital reading according to grade level, GPA, average daily digital reading time spent daily and the average number of books read monthly, since normality and other assumptions were not provided. Percentage and frequency values were used in the analysis of the data obtained with the Personal Information Form.

**FINDINGS**

This section of the study presents the findings in line with the sub-problems.

**Findings Regarding the First Sub-Problem**

Table 2 presents the descriptive analysis results for the first sub-problem "What is the attitude level of Turkish language teaching and primary education pre-service teachers towards digital reading?"

Table 2. Attitude Levels of Turkish Language Teaching and Primary Education Pre-Service Teachers Towards Digital Reading

| Dimensions | N | X | S |
|---|---|---|---|
| Digital reading characteristics | 330 | 4.11 | .48 |
| Digital reading preferences | 330 | 2.49 | .50 |
| Total | 330 | 3.54 | .35 |

As seen in Table 2, the average scores of Turkish and primary education pre-service teachers towards digital reading were 4.11 in the dimension of “digital reading characteristics,” 2.49 in the dimension of “digital reading preferences,” and 3.54 in the whole scale. Accordingly, while the participants have a high attitude towards digital reading characteristics, they have a moderate attitude towards digital reading preferences and digital reading.

**Findings Regarding the Second Sub-Problem**

Table 3 presents the Mann-Whitney U tests results for the second sub-problem "“Do the attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading differ according to gender?”.

Table 3. Mann-Whitney U Test Results for the Gender Variable

| Dimensions | Group | N | Rank Average | Rank Sum | U | p |
|---|---|---|---|---|---|---|
| Digital reading characteristics | Female | 230 | 162.74 | 37430.00 | 10865.000 | .425 |
| | Male | 100 | 171.85 | 17185.00 | | |
| Digital reading preferences | Female | 230 | 163.99 | 37718.50 | 11153.500 | .663 |
| | Male | 100 | 168.97 | 16896.50 | | |
| Total | Female | 230 | 163.73 | 37658.00 | 11093.000 | .609 |
| | Male | 100 | 169.57 | 16957.00 | | |

According to Table 3, when the digital reading attitudes of the participants by gender were examined, no significant difference was found since p values are greater than .05 in the dimensions of digital reading characteristics (p=.425>.05), digital reading preferences (p=.663>.05), and the whole scale (p=.609>.05).

**Findings Regarding the Third Sub-Problem**

Table 4 presents the Mann-Whitney U tests results for the third sub-problem "Do the attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading differ according to their departments?"

Table 4. Mann-Whitney U Test Results for the Department Variable

| Dimensions | Group | N | Rank Average | Rank Sum | U | p |
|---|---|---|---|---|---|---|
| Digital reading characteristics | Turkish | 175 | 171.21 | 29961.50 | 12563.500 | .248 |
| | Primary | 155 | 159.05 | 24653.50 | | |
| Digital reading preferences | Turkish | 175 | 149.84 | 26222.00 | 10822.000 | .001* |
| | Primary | 155 | 183.18 | 28393.00 | | |
| Total | Turkish | 175 | 166.67 | 29168.00 | 13357.000 | .812 |
| | Primary | 155 | 164.17 | 25447.00 | | |

*p<,05

According to Table 4, when the digital reading attitudes of the participants according to their departments were examined, there was no significant difference in the dimensions of digital reading characteristics (p=.248>.05) and the whole scale (p=.812>.05) since the p values are greater than .05. However, a significant difference was found in the digital reading preferences dimension of the scale (p=.001<.05) since the p-value was smaller than .05. It was determined that this difference was in favour of the participants in the department of primary education.

**Findings Regarding the Fourth Sub-Problem**

Table 5 presents the Kruskal Wallis test results for the fourth sub-problem "Do the attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading differ according to the grade level?"

Table 5. Kruskal Wallis Test Results for the Grade Level Variable

| Dimensions | Group | N | Rank Average | Sd | $X^2$ | p |
|---|---|---|---|---|---|---|
| Digital reading characteristics | 1st Grade | 96 | 154.02 | 3 | 7.310 | .063 |
| | 2nd Grade | 73 | 177.92 | | | |
| | 3rd Grade | 77 | 149.80 | | | |
| | 4th Grade | 84 | 182.23 | | | |
| Digital reading preferences | 1st Grade | 96 | 155.82 | 3 | 2.978 | .395 |
| | 2nd Grade | 73 | 179.94 | | | |
| | 3rd Grade | 77 | 160.49 | | | |
| | 4th Grade | 84 | 168.61 | | | |
| Total | 1st Grade | 96 | 152.86 | 3 | 6.206 | .102 |
| | 2nd Grade | 73 | 180.22 | | | |
| | 3rd Grade | 77 | 153.31 | | | |
| | 4th Grade | 84 | 178.33 | | | |

According to Table 5, when the digital reading attitudes of the participants according to their grade levels were examined, there was no significant difference in the dimensions of digital reading characteristics (p=.063>.05), digital reading preferences (p=.395>.05), and the whole scale (p=.102>, 05) since p-values are greater than .05.

**Findings Regarding the Fifth Sub-Problem**

Table 6 presents the Kruskal Wallis test results for the fifth sub-problem "Do the attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading differ according to the GPA?".

Table 6. Kruskal Wallis Test Results for the GPA Variable

| Dimensions | Group | N | Rank Average | Sd | $X^2$ | p |
|---|---|---|---|---|---|---|
| Digital reading characteristics | 3.00 and below | 103 | 151.32 | 2 | 3.398 | .183 |
| | 3.01-3.50 | 163 | 170.79 | | | |
| | 3.51-4.00 | 64 | 174.84 | | | |
| Digital reading preferences | 3.00 and below | 103 | 179.47 | 2 | 3.249 | .197 |
| | 3.01-3.50 | 163 | 158.58 | | | |
| | 3.51-4.00 | 64 | 160.65 | | | |
| Total | 3.00 and below | 103 | 156.38 | 2 | 1.396 | .498 |
| | 3.01-3.50 | 163 | 169.01 | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 3.51-4.00 | 64 | 171.25 | | | |

According to Table 6, when the digital reading attitudes of the participants are examined according to their overall GPA, there is no significant difference in the dimensions of digital reading characteristics (p=.183>.05), the digital reading preferences (p=.197>.05), and the whole scale (p=.498> .05) since p values are greater than .05.

**Findings Regarding the Sixth Sub-Problem**

Table 7 presents the Kruskal Wallis test results for the sixth sub-problem "Do the attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading differ according to the average daily digital reading time?"

Table 7. Kruskal Wallis Test Results for the Average Daily Digital Reading Time Variable

| Dimensions | Group | N | Rank Average | sd | $X^2$ | p |
|---|---|---|---|---|---|---|
| Digital reading characteristics | 0-2 hours | 98 | 158.47 | 2 | 3.335 | .189 |
| | 3-4 hours | 117 | 158.51 | | | |
| | 5 + | 115 | 178.60 | | | |
| Digital reading preferences | 0-2 hours | 98 | 147.33 | 2 | 5.770 | .056 |
| | 3-4 hours | 117 | 168.05 | | | |
| | 5 + | 115 | 178.40 | | | |
| Total | 0-2 hours | 98 | 154.81 | 2 | 5.188 | .075 |
| | 3-4 hours | 117 | 158.52 | | | |
| | 5 + | 115 | 181.72 | | | |

According to Table 7, when the digital reading attitudes of the participants were examined according to the average daily digital reading time, there was no significant difference in the dimensions of digital reading characteristics (p=.189>.05), digital reading preferences (p=.056>.05), and the whole scale (p=.075>.05) since p-values are greater than .05.

**Findings Regarding the Seventh Sub-Problem**

Table 8 presents the Mann-Whitney U test for the seventh sub-problem "Do the attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading differ depending on whether or not they have their own computers?"

Table 8. Mann-Whitney U Test Results for Having a Computer Variable

| Dimensions | Group | N | Rank Average | Rank Sum | U | p |
|---|---|---|---|---|---|---|
| Digital reading characteristics | Yes | 251 | 168.82 | 42375.00 | 9080.000 | .259 |
| | No | 79 | 154.94 | 12240.00 | | |
| Digital reading preferences | Yes | 251 | 164.86 | 41380.00 | 9754.000 | .828 |
| | No | 79 | 167.53 | 13235.00 | | |
| Total | Yes | 251 | 169.23 | 42475.50 | 8979.500 | .206 |
| | No | 79 | 153.66 | 12139.50 | | |

According to Table 8, when the digital reading attitudes of the participants were examined according to whether or not they have their own computers, there was no significant difference in the dimensions of digital reading characteristics (p=.259>.05), digital reading preferences (p=.828>.05), and the whole scale (p=.206>.05) since p values are greater than .05.

**Findings Regarding the Eighth Sub-Problem**

Table 9 presents the Kruskal Wallis test results for the eighth sub-question "Do the attitudes of Turkish language and primary education pre-service teachers towards digital reading differ according to the number of books they read monthly?"

Table 9. Kruskal Wallis Test Results for the Average Number of Books They Read Monthly

| Dimensions | Groups | N | Rank Average | Sd | $X^2$ | p |
|---|---|---|---|---|---|---|
| Digital reading characteristics | 0-2 | 175 | 168.47 | 2 | 1.295 | .523 |
| | 3-4 | 118 | 158.00 | | | |
| | 5 + | 37 | 175.34 | | | |
| Digital reading preferences | 0-2 | 175 | 170.39 | 2 | 1.621 | .445 |
| | 3-4 | 118 | 163.39 | | | |
| | 5 + | 37 | 149.09 | | | |
| Total | 0-2 | 175 | 168.21 | 2 | .721 | .697 |
| | 3-4 | 118 | 159.66 | | | |
| | 5 + | 37 | 171.31 | | | |

According to Table 9, when the digital reading attitudes of the participants according to the average number of books they read monthly are examined, it is seen that there is no significant difference in the dimensions of digital reading characteristics (p=.523>.05), digital reading preferences (p=.445>.05), and the whole scale (p=.697>.05) since p values are greater than .05.

## CONCLUSION, DISCUSSION AND RECOMMENDATION

Technological developments affect almost every field of life and also directly affect basic language skills. In reading, which is one of these skills, a transformation from paper to screen is being observed, and texts are shifting from printed media to digital media. It is inevitable that this shift will affect individuals' perspectives and attitudes towards reading and digital reading. The results of the present study, which aims to determine the attitudes of Turkish language and primary education pre-service teachers towards digital reading according to various variables, are presented in this section by comparing them with relevant studies from the literature.

When the attitudes of the participants towards digital reading were examined, it was determined that they had a moderate attitude. While the pre-service teachers had a moderate attitude in the dimension of "digital reading preferences," which is one of the sub-dimensions of the scale, they showed a high level of attitude in the dimension of "digital reading characteristics." According to this result, it can be said that although the participants believe in the importance and necessity of digital reading, they do not prefer to use it in their daily lives. This result shows similarity with the results of the studies by Bulut and Susar Kırmızı (2021) examining the attitudes of primary school 4$^{th}$ grade students towards on-screen reading, the study by Çelik (2015) and Maden and Maden (2016) examining the attitudes of high school students towards on-screen reading, the study by Demirci et al. (2021) examining the attitudes of teachers towards reading on screen, and the study by Divya and Mohamed Haneefa examining the attitudes of university students towards digital reading. The study carried out by Yıldız and Keskin (2016) to determine the attitudes of secondary and high school students towards reading on paper and screen revealed that the attitudes of the participants towards digital reading were higher than those of print reading. Başaran's (2014) study concluded that 4th-grade students like to read narrative texts from printed materials rather than on the screen. In Maden's (2012) study, which investigates the opinions of Turkish pre-service teachers on reading on screen, the participants stated that digital reading was important because it provides easier access to information sources, accelerates and facilitates academic and social development, helps individuals use time effectively and for reasons such as durability, practicality, functionality, weight, volume, cost, usage of multiple information and new resources, whereas they noted that digital reading causes eye diseases and various health problems, it makes people lazy because people reach information comfortably and destroys the effort to reach information it eliminates the pleasure, motivation, interest and commitment of reading printed books.

In the study by Çelik et al. (2015), which examined views of pre-service teachers on printed and e-books, the participants favoured reading e-books because they are portable, economic, environment-friendly and have multimedia support features. On the other hand, they displayed a negative attitude towards e-books due to eye strain, radiation exposure, and difficulty focusing. In another study (Azizoğlu & Okur, 2018), which aimed to determine perceptions of Turkish pre-service teachers on reading on-screen through metaphors, the categories emerged as deeming on-screen reading as beneficial and deeming on-screen reading as difficult/worthless. These categories are important as both positive and negative features of digital reading. Taking all these results into consideration, it can be said that reading types take place in the world of people with their upsides and downsides, and the reader's perspective on these features is determinative. Individual perspectives on the positive and negative aspects of reading on paper and on-screen also affect their attitudes towards these types of reading.

It was determined that the gender variable has no effect on the attitudes of Turkish language education and primary education pre-service towards digital reading. This result is in parallel with the past studies investigating the role of gender on reading attitudes (Akbaba, 2017; Çeçen & Deniz, 2015), digital reading attitudes (Alieto et al., 2020; Başaran, 2014; Bulut & Susar Kırmızı, 2021; Demirci et al., 2021; Susar Kırmızı & Güneş, 2015; Yıldız & Keskin, 2016), digital reading habits/tendencies (Elkıran, 2021; Şahenk Erkan et al., 2015) and digital reading self-efficacy perceptions (Ceylan & Çiçekli Koç, 2020; Gömleksiz ve diğerleri, 2013; Ulu & Zelzele, 2018; Yılmaz, 2019). However, there are also studies that found that the gender factor is determinant both on reading (Akkaya & Özdemir, 2013; Baki, 2017; Byro, 2000; Can ve diğerleri, 2016; Özdemir & Şerbetçi, 2018; Sallabaş, 2008; Schooten & Glopper, 2002; Stokmans, 1999; Şahin, 2019) and digital reading attitudes (Divya & Mohamed Haneefa, 2020; Maden & Maden, 2016; Soyuçok & Müzmin Akar, 2018) as well as digital reading habits/trends (Bulut & Karasakaloğlu, 2019; Maden, 2018; Maden, 2019). It is estimated that the different results arise out of the characteristics of the samples included in the studies. In this study, the absence of a significant difference in digital reading attitudes between male and female pre-service teachers could be attributed to the widespread use and availability of smart phones, thus to the existence of equal opportunities in digital reading.

When the digital reading attitudes of the participants are examined according to their departments, it is revealed that there is no significant difference in the dimension of digital reading features and the whole scale, while there

is a significant difference in favour of the participants in the department of primary education in the dimension of digital reading preferences. It is estimated that the predominance of literature and text-oriented courses in Turkish language undergraduate programs and the fact that students in this program prefer printed texts in such readings may have an impact on this result. The study by Azizoğlu and Okur (2018), which aims to reveal perceptions of Turkish language teaching pre-service teachers on-screen reading through metaphors, showed that except for 7, out of 59 participants, 52 negatively defined and explained the concept of on-screen reading and they support this judgment. Additionally, in the same study, the participants were asked why they chose the printed book or the screen, and only 4 participants stated that they preferred reading on screen because it was more comfortable and engaging. In the study by Çıvğın (2020), which investigated the digital reading self-efficacy of the education faculty students, it was determined that the students in the Turkish language teaching program had a moderate level of digital reading self-efficacy. In the study by Şahenk Erkan et al. (2015) carried out with the participants in Turkish language teaching, primary education and preschool teaching programs, it was concluded that the department is not a distinguishing factor in digital reading habits.

Another finding of the study is that the grade level variable does not significantly differ in the digital reading attitudes of Turkish and primary education pre-service teachers. This result can be interpreted as that undergraduate education is not a determinant factor in digital reading attitude, and this attitude is developed in pre-undergraduate education levels or daily life. In different studies examining the digital reading attitudes of secondary school students (Maden, 2019; Soyuçok & Mazman Akar, 2018), high school students (Yıldız & Keskin, 2016) and university students (Şahenk Erkan et al., 2015), it was found that grade level does not affect attitudes. Moreover, in Çelik's (2015) study, there was a significant difference in favour of 9th grade students in the e-book reading attitudes of high school students, and as the grade level increased, the e-book reading attitude values decreased. In the study by Susar Kırmızı and Güneş (2015), it was determined that the attitudes of 11th grade students were more positive than the attitudes of 10th grade students. Some international studies on reading attitudes (Byro, 2000; Campbell & Kmiecik, 2004; Hayes, 2000; McKenna et al., 1995; McKenna et al., 2012) also revealed that attitudes of students decrease as long as class level increases. It is seen that the studies carried out on various features of digital reading revealed different results regarding the grade level variable. In one of these studies (Elkıran, 2021), the grade level variable did not create a significant difference in the digital reading tendencies of Turkish language teaching pre-service teachers. In the study by Ulu and Zelzele (2018), it was determined that the grade level did not cause a significant difference in terms of on-screen reading self-efficacy perceptions of the students studying in primary education and mathematics teaching programs, while there was a significant difference between the 4th and 3rd grades in favour of the 4th grades in terms of on-screen reading self-efficacy of the Turkish language teaching pre-service teachers (Ceylan & Çiçekli Koç, 2020). In another study examining the digital reading self-efficacy of education faculty students (Çıvğın, 2020), it was found that the grade level was determinant in this regard, and there was a difference between 1st and 2nd graders in favour of the 2nd grade, between the 1st and 3rd grades in favour of the 3rd grade, between the 1st and 4th grades in favour of the 4th grade.

Another variable that did not result in a significant difference in the attitudes of the participants towards digital reading is GPA. Accordingly, it can be said that there is no relationship between academic achievement and digital reading attitude. In the study of Güzel and Elkıran (2021), which investigated the relationship between Turkish language teaching pre-service teachers' internet-based reading motivation and interaction and mobile learning attitudes, it was determined that the overall GPA of the participants did not make a significant difference in their mobile learning attitudes. The study by Akbaba (2017), which examined the reading attitudes of Turkish language pre-service teachers, revealed that the GPA does not affect reading attitudes. Similarly, Baki (2017), who investigated the reading attitudes of secondary school students, found that Turkish lecture scores did not significantly differ in students' reading attitudes. In the study of Elkıran (2020), in which on-screen reading self-efficacy perception levels of Turkish language teaching pre-service teachers were investigated, a significant difference occurred in favour of the group with the lowest GPA (2.00-2.49). Moreover, in the study by Elkıran (2021), which investigated the digital reading tendencies of Turkish language teaching pre-service teachers, a significant difference was found in favour of those with a GPA of 3 and above. Some other studies (Conlon et al., 2006; Martinez et al., 2008) revealing the impact of academic achievement on reading attitudes supports those studies, as well. Academic achievement/GPA is numerical data obtained as a result of studies such as exams, assignments, and projects. It is thought that students can prefer printed texts more to digital texts while preparing for exams and assignments because they can interact with texts and take notes where necessary during studies. Research results on the effect of printed and digital texts on reading comprehension (Başaran, 2014; Baştuğ & Keskin, 2012; Ercan & Ateş, 2015) reveal that printed texts affect student success. In addition, reading on paper does not create tiredness in the reader compared to digital reading and allows the use of reading strategies (Baştuğ & Keskin, 2012). Therefore, it is estimated that the GPA of pre-service teachers do not make a significant difference in their digital reading attitudes.

Considering the digital reading attitudes of the pre-service teachers according to the average daily digital reading time, it was determined that this time did not make a significant difference in the attitudes. Accordingly, the amount of time spent by the participants in digital reading environments does not determine their attitudes towards digital reading. According to the study of Bulut & Susar Kırmızı (2021), attitudes of primary school students towards on-screen reading do not differ significantly according to the variable of time spent in front of the computer. Besides, in other studies, no significant difference was found in the average e-book reading attitude scores of high school students according to the frequency of using social media (Çelik, 2015) and on-screen reading self-efficacy perception levels of Turkish language teaching pre-service teachers according to the variable of internet and social media usage frequency (Ceylan and Çiçekli Koç, 2021). On the other hand, in Çıvğın's (2020) study, it was determined that as the daily screen time of pre-service teachers increased, their digital reading self-efficacy levels also increased. In Ulu and Zelzele's (2018) study, in the practicality, page management and eye health sub-dimensions of on-screen reading self-efficacy perceptions of primary education and mathematics teaching pre-service teachers, a significant difference was found in favour of those who use the internet for 1-3 hours (compared to those who use the internet less than 1 hour and more than 3 hours).

Whether or not the participants have a personal computer did not cause a significant difference in their digital reading attitudes. This result is similar to the results of the studies which found that the presence of a computer at the home of 4th grade primary school students does not significantly affect their digital reading attitudes (Bulut & Susar Kırmızı, 2021) and the fact the social studies pre-service teachers have a personal computer does not make a significant difference in their digital literacy attitudes (Yaman, 2019). On the other hand, studies showed that having a personal computer resulted in a significant difference in the digital literacy skills of pre-service teachers (Öztürk and Budak, 2019) and Korkmaz (2020) and university students (Göldağ, 2021) and the digital reading habits of pre-service teachers (Şahenk Erkan et al., 2015). A similar result was observed in Bilge's (2019) study, which examined the e-literacy attitudes of secondary school students, and it was determined that students with a computer had more positive attitudes towards e-literacy than those who did not. It is thought that the fact that the participants prefer smartphones more to digital reading may affect the fact that the variable of having a computer did not result in a significant difference in the attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading. As a matter of fact, in studies examining the digital reading cultures of teachers (Akcaoğlu Saydım, 2017), high school students (Boz, 2018) and university students (Elkatmış, 2021), it was determined that teachers and students mostly read from their smartphones. It is estimated that the easily portable feature of mobile phones affects these preferences. According to Maden (2016), who underlines that mobile phones also incorporate the features of computers, reading activities from mobile phone screens are increasing rapidly with the improvement of technological infrastructure and accessibility day by day.

It was determined that the number of printed books that Turkish language teaching and primary education pre-service teachers read on a monthly average did not make a significant difference in their digital reading attitudes. In a similar study conducted by Çelik (2015), high school students' attitudes towards e-book reading do not differ significantly according to the frequency of reading books. According to the research of Yıldız and Keskin (216), it was determined that reading books during adolescence did not make a significant difference in terms of digital reading attitude. In another study conducted on primary school students (Başaran, 2014), it was revealed that the variable of the average amount of books read per week did not have a significant effect on the attitude developed by students who read both narrative and informative texts on the screen towards texts. No significant difference was observed in the internet-based reading motivations of Turkish language teaching pre-service teachers compared to the variable of annual average book reading (Guzel & Elkıran, 2021). In the study conducted by Macit and Demir (2016) on primary school 4th graders, it was determined that there was no relationship between an increase or decrease in weekly book reading hours and on-screen reading preference. Unlike these studies, Maden's (2016) study showed that as the habit of reading printed material decreases in high school students, the level of attitude towards reading on the screen increases. In Maden's (2019) study, it was revealed that the average e-reading habits of secondary school students decreased as the reading time of printed materials increase. The number of printed books that pre-service teachers read does not make a significant difference in their digital reading attitudes and this result might be associated with that digital and print reading are different skills. For this reason, it can be said that having a positive or negative attitude toward reading printed books will not be very effective in the individual's perspective on digital reading.

In line with the results of the study, the following recommendations were made.

Considering that attitudes of pre-service teachers towards digital reading are moderate, elective courses such as digital reading and on-screen reading can be offered in undergraduate programs in order to improve these attitudes.

Because Turkish teacher candidates' preferences of digital reading are lower than classroom teachers' new studies can be conducted in order to determine the factors on participants' preferences.

It was determined that there is no meaningful significance in terms of class level and grade point average in participants' attitudes towards digital reading. The reasons related to this finding can be revealed by means of interviews conducted with participants who have different point average and are from different class level.

There is no impact of daily digital reading duration and the number of books that they read monthly on teacher candidates' attitudes towards digital reading. Some research can be conducted on the impact of the habits of reading printed books on attitudes towards digital reading and the impact of attitudes towards digital reading on the habits of reading printed books.

Investigations can be conducted on what technological devices teacher candidates prefer in digital reading because whether the participants have a personal computer or not, does not make a meaningful significance attitudes towards digital reading.

Semi-experimental studies that can improve digital reading skills and attitudes of pre-service teachers might be carried out.

This study determined attitudes of Turkish language teaching and primary education pre-service teachers towards digital reading. Similar studies can be carried out with pre-service teachers in different undergraduate programs.

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