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Digital reading habits of pre-service Turkish language teachers

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The present study aimed to determine the digital reading habits of pre-service Turkish language teachers. The study was conducted with relational screening model. The study sample included pre-service Turkish language teachers (n = 140) who were faculty of education students at a state university. To determine the digital reading habits of pre-service teachers, a digital reading habits scale was developed by the author based on the field literature. The developed scale was individually delivered to pre-service teachers in the sample to collect the study data. The obtained data were analysed using arithmetic mean, independent samples t-test and one-way analysis of variance (Anova) statistical techniques. The study findings demonstrated that psychological factors associated with reading (interest, anxiety, motivation, etc.) were occasionally influential on the reading process using digital media, and pre-service teachers mostly utilised digital media on a daily basis. It was observed that digital media manuscripts were read to obtain information, for entertainment and to chat with others. Furthermore, it was determined that Internet use on a mobile phone, as well as owning a web page and a social media account, were effective on digital reading habits.

Keywords: digital; habit; pre-service Turkish language teacher; printed; reading

Introduction

Individuals utilise technological products that are updated constantly to meet their needs to relay information and to communicate. It is indispensable for the 21st century society to access and share information using computer screens and mobile devices and household appliance screens such as television sets. Reading is basically assigning meanings to written or printed symbols. While this process only occurred on paper media until recently, it is now possible to read on digital device screens. Digital displays provide significant savings in terms of time, space and energy. Thus, the screens allow individuals to produce, share and evaluate information. The information obtained by reading on printed pages is also accessed via the screens today.

Problem Statement

Obtaining information through digital screens, as well as producing and sharing information on screens, undoubtedly altered reading skills. The multidimensional structure of reading that is based on the word, writing, visual, movement, touch and space/medium is strongly demonstrated in digital devices (Amiama-Espaillat & Mayor-Ruiz, 2017; Knobel & Lankshear, 2014; Lanham, 1995; Plester & Wood, 2009). According to Maden (2012:2), the language teaching process that start with pen and paper was recorded on printed material, knowledge and qualifications associated with language skills were copied and assessed, and today, learning became faster and more available on electronic screens. Reading has also been affected by this change, and concepts such as speed-reading, computer-aided reading, media literacy and screen/digital reading have emerged. Digital reading refers to assigning meanings to texts and other multimedia sources on the electronic media that are accessible by digital devices. Electronic texts, which are developed in computer environment, are usually distributed using signals and read on a screen (Hillesund, 2007). With digital reproduction of printed material, electronic texts with written, visual, auditory, touch-operated and hyperlink functions could be read by the digital reader on a screen (Ministerio de Educación, 2010). Digital reader completes the reading process by making sense of texts such as books, magazines, blogs, e-mail, etc. available in electronic media and written or drawn elements on computers, phones, radio and television (TV), movies, telex, fax, graphics, paintings, voice recordings and videos.

Literature Review

Digital reading as a learning resource

The current technological changes were accurately defined in developed societies, and new regulations were enacted for new generations to acquire digital competencies in the education system. One of the competencies that are considered within the context of lifelong learning and included in the curricula in developed countries and developing countries is digital competency. In an age where digital media has an increasing impact on shaping the human life, children should be prepared for the abovementioned changes. Because, they are raised in a sophisticated media and computer environment and were born between 1995 and 2012 (Schroer, 2008:9) today's children are called Z-generation. Characteristic features of Z-generation children include technological expertise, quickness and impatience, interactivity, resolution, and multitasking traits (Fernández-Cruz & Fernández-Díaz, 2016).

The effective use of digital devices should be strategised in educational institutions and social life while training Z generation children. Naturally, this does not apply only to children, because digital devices respond to

the needs of individuals of all ages to acquire, produce, and share knowledge, communicate, and have fun. For instance, a student can benefit from a computer or a mobile device with internet access when conducting research, while adults can use it in their work, in commercial transactions, or entertainment. We live in two different communications worlds: the first is the real world (where we socialise with individuals and discuss ideas physically); and the second is the virtual world (communications, sharing, entertainment, mass communication activities conducted on virtual-digital media) (Potter, 2008:12). In sharing, storing and creating information in electronic or virtual media, reading digital screens is a primary method to obtain information. The rate of reading content on printed material has been decreasing during recent years when compared to reading digital/ electronic texts. An important section of contemporary readers, especially young individuals prefer electronic/digital texts due to easy and improved comprehension, (text-reader) interaction, intertextuality, ability to change dimensions, ease of storage and editing, low costs, portability and other benefits. Readers began to use these texts since they offered a number of advantages such as online access, search capability, cost benefits, and portability (Sackstein, Spark & Jenkins, 2015). Furthermore, readers have the opportunity to navigate and search the content while reading on screen. The search feature, which is not available in a printed book, enables the efficient use of time in the process. Such features explain the preference of screens in reading (Bodomo, Lam & Lee, 2003; Chen, Li & Jia, 2005; Chu, 2003; Gunter, 2005). The fact that digital readers could create reading maps on electronic media is definitely a distinct quality when compared to reading books printed on paper. This attribute introduces the concepts of flexibility and selection to reading (Landow, 1992). Thus, readers can navigate through electronic texts, establish links between these texts, and actively bookmark the texts, leading to a more effective reading experience.

Reading instruction and digital screens

Today, frequent use of internet-enabled mobile devices and smartphones increased the significance of learning on digital screens. Thus, previous studies determined that the use of digital technologies and mobile applications increases the success in learning (Johnson, Adams & Cummins, 2012; Shih, Chuang & Hwang, 2010; Wu, Wu, Chen, Kao, Lin & Huang, 2012). These determinations make it necessary for individuals to be trained in reading digital screens. However, digital literacy should not be considered an alternative to conventional reading, but ought to complement conventional reading (Reinking, McKenna, Labbo & Kieffer, 1997; Tuman, 1994). According to Günes (2010), screen reading skills should be gradually introduced in primary education after reading on paper skills are developed. Brown (2001), Foltz (1996) and Mercieca (2004), on the other hand, stated that digital reading skills are different from the printed material reading skills. Comprehension methods and techniques used while reading printed material can be ineffective in the process of reading on the screen. Thus, students should acquire the skills, methods and techniques that would lead to effective and positive on screen reading during reading instruction activities.

Theoretical Framework

It is important to investigate electronic reading habits since it is an important achievement in reading instruction; and the fact that contemporary reading habits are exhibited on electronic device screens necessitate better recognition of reading activity in digital media. Life is increasingly conducted on digital media. This also affects reading habits. Thus, this aspect should also be emphasised in reading instruction.

It is imperative that mother tongue teachers, who have an effective role in the acquisition of these habits, themselves possess printed and electronic reading skills and use these skills to provide a model in their professional lives. Furthermore, teachers' digital media attitudes ought to have a positive impact on learning achievements of the student (Cheng & Weng, 2017; Maden & Maden, 2018). This requires the development of instructional content for on-screen reading activities and the pre-service training of native language teachers on these skills. Thus, it was considered that the determination of digital reading habits of pre-service Turkish language teachers in undergraduate education would contribute to the literature and guide future regulations. In addition, language teachers who will provide reading education first need to recognise and improve their own digital reading habits. Effective use of digital resources is important in accessing information resources and increasing social development. Thus, it is necessary for the native and foreign language teachers in developed countries and developing Asian and African countries to acquire this awareness.

The Objective of the Study

Based on the abovementioned preamble, the present study aimed to determine the reading habits of pre-service Turkish language teachers on digital media. For this purpose, the following research questions were identified:

1. How are the digital reading habits of pre-service Turkish teachers?
2. Is there a difference between digital reading habits of pre-service Turkish language teachers based on gender?

3. Is there a difference between digital reading habits of pre-service Turkish language teachers based on the length of reading printed material?
4. Is there a difference between digital reading habits of pre-service Turkish language teachers based on the habit of reading printed material?
5. Is there a difference between digital reading habits of pre-service Turkish language teachers based on the variable of accessing Internet on mobile phone?
6. Is there a difference between digital reading habits of pre-service Turkish language teachers based on social media account ownership?
7. Is there a difference between digital reading habits of pre-service Turkish language teachers based on web page ownership?

Methodology

In this study the relational screening model, a quantitative method, was utilised. According to Karasar (2014:77), "the relational screening model is a screening model that aims to determine the presence and/or degree of covariance between two or more variables. In such a methodology, the variables, between which a covariance would be investigated, are symbolised individually." Symbolisation in relational screening should allow for analysis (Fraenkel & Wallen, 2006).

Sample

The study sample was determined by random sampling method among pre-service Turkish language teachers who were students at a faculty of education in a state university in Turkey. The sample included 140 pre-service Turkish language teachers. The study sample included pre-service Turkish language teachers, who study pedagogical principles and theories associated with reading skills in the pre-service phase and will teach these principles and theories to students in their professional lives. These teachers were required to develop themselves by following the advances and changes in reading.

Data Collection

A Digital Reading Habits Scale was developed by the author based on related scales (Maden & Maden, 2016; Şahenk Erkan, Dağal Balaban & Tezcan, 2016) in the literature to determine the digital reading levels of pre-service Turkish language teachers and assess the findings based on various variables. In the process of scale development, scales related to reading printed texts were reviewed and a 30-item pool for reading activities performed in digital/electronic media was developed (Appendix A).

Validity and reliability analyses

27-items that provide content validity were selected by obtaining the expert opinions of academics in the field of Turkish teaching (n = 5) and Turkish teachers (n = 6). The draft scale was applied in a pilot scheme conducted with 75 pre-service teachers and the internal consistency reliability coefficient for the whole scale was determined as Cronbach Alpha = 0.89. One item with an internal consistency coefficient of less than 0.60 was excluded from the scale and the scale was finalised with 26 items. Factor analysis was conducted on the scale to determine the construct validity and items with a factor load of over 0.40 were included in the scale. It was observed that Bartlett test X^2: 1035.241 and the Kaiser-Meyer-Olkin value (Büyüköztürk, 2014) was 0.80 in determination of the construct validity of the scale. The scale included two dimensions: reading psychology and daily use. These two factors explained 67.85% of the total variance. In factor analysis, it was determined that the factor loads varied between 0.46 and 0.80.

The scale is a four-point Likert type scored by (4) always; (3) mostly; (2) seldom; and (1) never. Two negative items were reverse-coded. The first section of the scale included an information form, which was used to determine the sample demographics. To grade the range values in the data collection instrument, interval calculation method was utilised. Thus, n-1/n range formula, as 0.74 points in each range, was applied to interval values in the scale (as seen in Table 1).

Table 1 Scale point ranges

Options	Assigned value	Value range
Never	1	1.00 – 1.74
Seldom	2	1.75 – 2.49
Mostly	3	2.50 – 3.24
Always	4	3.25 – 4.00

After completion of the analyses on the pilot scheme, the scale was delivered personally to pre-service teachers and again collected personally afterwards.

Data Analysis

The data collected in the study were analysed with Statistical Package for the Social Sciences (SPSS) 16.0 software based on the study objective and sub-problems and the findings were presented in tables and interpreted. Mean and standard deviation statistics were used in the analysis of the mean digital reading levels. The independent samples t-test and the one-way ANOVA technique (Büyüköztürk, 2014) were used to test the effects of variables such as gender, the length of reading printed material, reading habits, internet access on mobile phone, PC (personal computer) use, and social media account ownership. In the data analysis, significance level was accepted as 0.05 ($p < 0.05$).

Results

In this section, the findings associated with the objective and sub-problems of the study are presented and interpreted using tables.

Digital Reading Habits of Pre-service Turkish Language Teachers

Table 2 Findings on reading psychology dimension

Reading psychology dimension	X	*SD*
I am interested in reading in digital media (on-screen).	2.6857	0.7689
I feel comfortable when reading in digital media.	2.4500	0.8339
I feel anxious when reading in digital media.	1.9286	0.7833
My reading comprehension skills are restricted when utilising technologies for reading.	2.0126	0.8153
Reading in digital media increases my motivation for comprehension.	2.1857	0.8943
I enjoy reading the content shared on digital media.	2.4357	0.7793
I trust the content I read on digital devices.	2.0071	0.5814
I consider reading on the screen as a part of my life.	2.4714	0.9479
Total	2.2616	0.3820

As seen in Table 2, pre-service Turkish language teachers stated that the psychological factors associated with reading were seldom ($\bar{x}$ = 2.2616) effective on the reading process in digital media. Furthermore, it was also determined that pre-service teachers were mostly ($\bar{x}$ = 2.6857) interested in reading on the screen. In addition, they indicated that the other factors that constitute the psychological dimension of reading such as feeling comfortable, anxious, fear of technology to restrict comprehension, motivation, joy, trust, and considering it as a part of life were seldom valid and effective.

Table 3 Findings on the daily use dimension of digital reading

Daily use dimension	X	*SD*
I regularly read on the screen in digital media.	2.1286	0.8210
I read in digital media whenever I need to.	2.8429	0.9838
I read in digital media to get information and the news.	2.9571	0.8966
I sometimes read in digital media for fun or chat with others.	2.8357	0.7921
I archive the content I am interested in or I consider important in digital media.	2.2857	0.8756
I prefer reading on screen instead of reading printed resources.	2.4357	0.9152
Even though I read digital resources, I always check printed resources when available.	2.7571	0.8124
I can use various electronic devices (computer, mobile phone, tablet, etc.) when reading.	2.7571	0.7762
I learn about new and interesting things on digital resources.	2.7786	0.8053
I comprehend the content better and quicker when I read it on electronic devices.	2.4500	0.7711
I usually comment on and share the content during digital reading.	2.2950	0.9740
I prefer to read using mobile and portable devices.	2.7571	0.8212
I become active when I need to use digital devices/screens in the classes.	2.5429	0.8343
I spend my spare time by reading and chatting on the mobile phone.	2.8286	0.8562
I rush to read the text as soon as possible when reading on the screen.	2.4429	0.8420
I pay attention to different resources (dictionary, comments), visuals and sounds (photograph, video, links, etc.) when reading in digital media.	2.9071	0.7947
I also utilise other digital media to read related content while reading on the screen.	2.6714	0.7722
I discuss about the content I read in digital media with others.	2.7500	0.8147
Total	2.6188	0.3649

Table 3 demonstrates that pre-service Turkish language teachers mostly ($\bar{x}$ = 2.6188) read via digital devices during the day. It was also noteworthy that pre-service teachers seldom conducted activities such as: regularly reading on digital screens; archiving using digital devices; preferring screens for reading instead of printed resources; rushing while reading on the screen; learning new and interesting things; commenting and sharing digital content. On the other hand, it was also interesting that pre-service teachers stated that they seldom comprehended the content better and quicker while reading on the screen.

It was observed that pre-service teachers in the sample read in digital media both to get information and the news and to have fun and chat. It was determined that pre-service teachers read mostly using digital media to get information or to have fun. Furthermore, it was found that pre-service teachers mostly used digital media for activities such as: consulting digital media whenever they needed to read; checking printed resources after utilising digital texts; reading using various electronic devices; preferring mobile devices; prioritising audio visual elements; reading multiple digital resources; and discussing with others. The habit of pre-service teachers to check printed resources after reading a digital source could be explained with means associated with anxiety ($\bar{x}$ = 1.9286) and distrust ($\bar{x}$ = 2.0071) factors in the psychological dimension.

Analysis of Digital Reading Habits Based on Gender

Table 4 Findings on gender variable

	Gender	*N*	X	*SD*	*t*	*p*
Reading psychology dimension	Male	64	2.2617	.4590	0.003	0.997
	Female	76	2.2515	.3056		
Daily use dimension	Male	64	2.7830	.3152	4.249	0.000
	Female	76	2.5374	.3608		
Total	Male	64	2.9922	.2899	3.559	0.001
	Female	76	2.8191	.2839		

Table 4 demonstrates that there were significant differences between digital reading habits of female and male pre-service Turkish language teachers based on daily use and general habit levels. The results of the *t*-test conducted on the obtained data showed that there was no significant difference between the digital reading habits of the male and female candidates based on reading psychology (p = 0.997). However, it was also determined that there was a significant difference favouring male pre-service teachers based on daily use and general habit levels.

Analysis of Digital Reading Habits Based on the Length of Reading Daily Printed Material

Table 5 Findings on the length of reading daily printed material variable

	Length of daily reading	*N*	X	*SD*	*F*	*p*
Reading psychology dimension	None	24	2.2604	.2877	0.433	0.784
	Less than 1 hour	57	2.3092	.4819		
	1 hour	46	2.2201	.2703		
	2 hours	6	2.1875	.5289		
	More than 2 hours	7	2.2143	.2673		
Daily use dimension	None (I)	24	2.4583	.2272	3.099	0.018
	Less than 1 hour (J)	57	2.7458	.3793		
	1 hour	46	2.6558	.3446		
	2 hours	6	2.5278	.4671		
	More than 2 hours	7	2.5873	.3900		
Total	None (I)	24	2.7516	.1864	2.991	0.021
	Less than 1 hour (J)	57	2.9842	.3163		
	1 hour	46	2.9171	.2860		
	2 hours	6	2.8077	.4525		
	More than 2 hours	7	2.8516	.3556		
					Post-Hoc LSD I–J = 0.001	

Table 5 demonstrates that there was a significant difference between the digital reading habits of pre-service Turkish language teachers based on the length of the time they spent reading printed material. However, based on digital reading psychological factors, it was observed that the time spent reading printed material daily was not an active predictor. On the other hand, it was found that the length of reading printed material was an effective predictor of daily use and general habit levels in digital reading. One-way ANOVA analysis conducted on the data demonstrated that the length of reading printed material was an effective predictor of daily use of digital reading habits. Analysis findings indicated that there was a significant difference between digital reading habit averages of pre-service teachers favouring those who read printed material during the day for less than one hour (p = 0.018). It was determined that there was a significant difference between general averages of pre-service Turkish language teachers' digital reading habits favouring those who read printed material less than one hour per day (p = 0.021). This finding demonstrated that digital reading habits of pre-service teachers did not vary significantly based on the length of reading printed material per day, however these habits changed positively when the pre-service teachers regularly read during the day.

Analysis of Digital Reading Habits Based on the Habit of Reading Books

Table 6 Findings on the reading printed books variable

	Reading printed books	*N*	X	*SD*	*F*	*p*
Reading psychology dimension	One book per year or longer	4	2.4688	.0625	0.327	0.859
	One book in more than one month	12	2.2188	.5004		
	One book per month	58	2.2586	.4539		
	One book in more than one week	19	2.2566	.3320		
	One book per week	47	2.2606	.2793		
Daily use dimension	One book per year or longer	4	2.7222	.4182	5.328	0.001
	One book in more than one month (I)	12	3.0139	.3044		
	One book per month	58	2.6755	.3855		
	One book in more than one week	19	2.6520	.3317		
	One book per week (J)	47	2.5177	.2816		
Total	One book per year or longer	4	2.9808	.2674	3.754	0.006
	One book in more than one month (I)	12	3.1538	.2685		
	One book per month	58	2.9129	.3323		
	One book in more than one week	19	2.9069	.3141		
	One book per week (J)	47	2.8044	.2117		
					Post-Hoc LSD I–J = 0.000	

As seen in Table 6, it was determined that there was a significant difference between digital reading habits of pre-service Turkish language teachers based on the length of reading (printed) books. However, based on psychological factors on digital reading, it was identified that reading books was not an effective predictor. On the other hand, it was determined that the habit of reading printed books was an effective predictor for daily use dimension of digital reading and general habit level. One-way ANOVA analysis conducted on the data revealed that reading printed books led to a significant difference on daily use dimension of digital reading. Analysis results demonstrated that there was a significant difference favouring the pre-service teachers, who read one book in a period of over one month (p = 0.001). This finding suggested that digital reading habits decreased as printed book reading habits increased; thus, digital reading averages of those who read a book in more than a week, a month, more than a month, or a book in a year had higher digital reading averages. It was also determined that there was a significant difference between the general digital reading habit averages of pre-service teachers favouring those who read a book in more than a month (p = 0.006). In other words, it was noteworthy that the digital reading habits of pre-service teachers who read a book in more than a week, a month, more than a month and a year were higher when compared to that of the pre-service teachers who read a book in a week.

Analysis of Digital Reading Habits Based on Internet Access on Mobile Phone

Table 7 Findings on mobile phone internet access

Internet access on mobile phone		*N*	X	*SD*	*t*	*p*
Reading psychology dimension	Yes	129	2.2578	.3924	0.409	0.683
	No	7	2.1964	.2149		
Daily use dimension	Yes	129	2.6814	.3571	5.209	0.001
	No	7	2.2222	.1157		
Total	Yes	129	2.9188	.2992	3.000	0.003
	No	7	2.5769	.1236		

As seen in Table 7, it was determined that there was a significant difference between the digital reading habits of pre-service Turkish language teachers based on internet access on mobile phone. It was observed that there was no difference between psychological factors associated with digital reading habits of the pre-service teachers based on internet access on mobile phone (p = 0.683). On the other hand, t-test results revealed that there was a significant difference between the digital reading daily use habits of pre-service teachers favouring those who had internet access on their mobile phones (p = 0.001). Another important study finding was that there was a significant difference between general digital reading habit averages of the pre-service favouring those who had internet access on their mobile phones.

Analysis of Digital Reading Habits Based on Social Media Account Ownership

Table 8 Findings on social media account variable

Social media account		*N*	X	*SD*	*t*	*p*
Reading psychology dimension	Yes	120	2.2365	.36553	-1.927	0.056
	No	20	2.4125	.44996		
Daily use dimension	Yes	120	2.6968	.35032	3.977	0.000
	No	20	2.3672	.29440		
Total	Yes	120	2.9231	.29061	2.454	0.015
	No	20	2.7493	.30857		

Table 8 demonstrates that there was a significant difference between the digital reading habits of the pre-service Turkish language teachers based on social media account ownership. It was determined that there was no significant difference between the psychological factors associated with the digital reading habits of the pre-service teachers based on social media account ownership (p = 0.056). However, the results of the *t*-test conducted on study data showed that there was a significant difference between digital reading daily use habits of the pre-service teachers favouring those with social media accounts (p = 000). Another important study finding was that there was a significant difference between general averages of the pre-service teachers' digital reading habits favouring those with social media accounts.

Analysis of Digital Reading Habits Based on Web Page Ownership

Table 9 Findings on web page ownership variable

Web page ownership		*N*	X	*SD*	*t*	*p*
Reading psychology dimension	Yes	57	2.2873	.4574	0.658	0.512
	No	83	2.2440	.3219		
Daily use dimension	Yes	57	2.7719	.3418	3.448	0.001
	No	83	2.5657	.3516		
Total	Yes	57	2.9858	.3072	2.957	0.004
	No	83	2.8381	.2784		

Table 9 demonstrates that there was a significant difference between the digital reading habits of the pre-service Turkish language teachers based on web page ownership. It was determined that there was no significant difference between the psychological factors associated with the digital reading habits of the pre-service teachers based on web page ownership, similar to other variables (p = 0.512). However, the results of the *t*-test conducted on study data showed that there was a significant difference between digital reading daily use habits of the pre-service teachers favouring those with web pages (p = 0.001). Another important study finding was that there was a significant difference between general averages of the pre-service teachers' digital reading habits favouring those with web pages.

Discussion

As the concept of digital citizenship became increasingly significant in today's environment, a change in literacy skills is inevitable. Today, it is a necessity for individuals to use digital media in the acquisition of information and entertainment processes. It is now common that every individual, who is educated as literate person and sustain her or his life, could read on a digital screen and write using a keyboard to achieve her or his objectives (Dillon, 1992; Hansen & Haas, 1988; Mckenna, Reinking, Labbo & Kieffer, 1999). This necessitates the acquisition of novel literacy skills by a new generation during language instruction; as well as training language teachers in the same manner. In this context, the results related to the Turkish pre-service teachers can be supported by related researches in the literature, to be discussed below.

The present study findings on the pre-service Turkish teachers' interest and pleasure levels while reading on the screen were consistent with the results obtained by Grimshaw, Dungworth, McKnight and Morris (2007). In that study, Grimshaw et al. (2007) found that different forms of electronic story books did not had any effect on children's level of comprehension and pleasure during reading. However, Pearman (2008) demonstrated that reading comprehension skills of students who read electronic story books were affected positively.

It is important for the reading comprehension process that the level of motivation is high. The findings of the study and the results obtained by Macit and Demir (2016) that environment has an impact on reader motivation were not consistent. The findings on the high interest of the pre-service teachers for digital reading and the findings in a study by Greenlee-Moore and Smith (1996) were

consistent. In that study, authors found that the interest of readers was higher in digital media when the text was long and difficult.

The fact that pre-service teachers stated that they often comprehended the content better and quicker when reading on the screen was consistent with the findings by Doty, Popplewell and Byers (2001). On the other hand, this argument is also supported by Toyoda (2016), who argues that well-designed technological tools reduce the burden of learners' amounts of information. Similarly, Maynard and McKnight (2001) investigated the effects of digital media on reading speed and comprehension and found that the reading speed of readers was lower when reading on electronic media. The abovementioned study determined that there was no difference between the comprehension levels of children who read the text on electronic and printed media. The findings of a study conducted by Chien, Chen and Chan (2017), who investigated the effects of use of digital books, that multimedia books improved social interaction were consistent with the present study findings. The findings of the present study that digital reading aimed to acquire information and news can be explained by the fact that pre-service teachers attending undergraduate studies read digital resources due to the requirements of their education and other personal needs. This finding is supported by the findings of Ozerbas and Erdogan (2016), who stated that competency in digital technologies was effective on learning. Furthermore, findings were consistent with Dreyer's (2017) recommendations on the use of digital stories in teacher training programmes in South Africa. In addition, the results are a guide for teachers teaching other Asian, African and European languages.

In a study that investigated the preferences of teachers in reading printed media and on screen, Dağtaş (2013) found that teachers predominantly preferred to read printed material. Thus, both studies were consistent on the subject of the trust to read printed material.

Furthermore it was determined that there was a significant difference between the digital reading habits of pre-service Turkish language teachers favouring the male pre-service teachers. This finding is consistent with the findings by Ulas and Ozan (2010) on the use of information and communication technologies that favored males, but contradicts the findings of a study by Macit and Demir (2016), who reported that the same difference favoured females. The fact that the digital reading habits of the females were lower in the present study can be related to the digital media use habits of the females and their inclination to write more than reading and the duration they use the digital media. It was also found that there was a significant difference between the digital reading habits of pre-service teachers favouring those who read printed material less than an hour per day, based on the time allocated to reading printed material on a daily basis. On the other hand, it was found that there was a significant difference between the digital reading habits of the pre-service teachers favouring those who read a (printed) book in more than a month. This finding suggested that digital reading habits decreased as the habit of reading printed books increased. In studies conducted by Balcı (2009) and Horzum (2011), it was found that the habit of reading and writing on electronic media affected the habit of reading books negatively, and the finding was consistent with the findings of the present study. On the other hand, in a study conducted to determine the correlation between digital reading attitudes and reading printed books by Yildiz and Keskin (2016), it was found that there was no difference, contradicting the findings of the present study.

In a study by Sur, Ünal and Işeri (2014) that defined media devices and scrutinised teacher and student views on media literacy, it was indicated that telephone and other digital media tools altered the communication habits. This finding is consistent with the findings of the present study. Furthermore, it was found that there was a significant difference between the digital reading habits of the pre-service teachers favouring those with a social media account. This finding can be explained by the facts that pre-service teachers read using digital media to acquire information, receive the news, to have fun and to chat and the pre-service teachers were the members of the Z generation. Because Z generation members fulfil their needs and develop themselves using technologies, the internet and digital devices (Schroer, 2008). Similar results with web pages findings, which reported that internet use affected digital reading habits, could be find in the literature (Coiro, 2009; Şahin, Çermik & Doğan, 2009). Similarly, it was observed that the findings of a study by Keskin, Baştuğ and Atmaca (2016) supported the conclusion that use of mobile devices and social media account ownership increased the tendency to read using digital media.

Conclusion

The following results were obtained in the present study that aimed to determine the reading habits of pre-service Turkish language teachers in digital media and to assess the findings based on several perspectives.

Pre-service Turkish language teachers stated that psychological factors associated with reading were seldom effective in digital reading process. It was observed that pre-service teachers were interested in reading on digital screens, however they seldom exhibited comfort, trust, anxiety and comprehension while reading on the screen.

The reading environment can be either printed or digital, however the reading environment should possess characteristics that allow interaction among readers. Furthermore, the environment also affects the motivation of the reader. In the present study, it was determined that candidates were seldom motivated in the digital reading process.

The study determined that pre-service Turkish language teachers often read with digital devices on a daily basis. Furthermore, it was noteworthy that pre-service teachers stated that they often comprehended the content better and quicker when reading on the screen.

The findings that pre-service teachers read to acquire information, get the news, for fun, as well as to chat, demonstrated that reading on digital devices became a significant part of their lives.

On the other hand, it was determined that pre-service teachers had the habit of browsing the printed resources after reading the content on digital resources. This finding demonstrated that pre-service teachers trust the information and knowledge available in the digital environment.

In the present study, it was determined that pre-service teachers had the habit of spending their spare time by reading and writing on their mobile phones. This finding demonstrated that candidates, who grew up utilising technologies and will continue to utilise these technologies in daily life in the future, share this natural and prevalent attribute. Naturally, spending time on mobile phones and mobile devices without using the time efficiently can undoubtedly lead to several problems in private and social lives. Thus, starting from primary education, new generations should be educated about the effective use of computers, mobile devices and mobile phones.

Furthermore, it was found that there was a significant difference between the digital reading habits of pre-service teachers favouring those who accessed the internet using their mobile phones. This finding can be explained by the high digital reading habits of pre-service teachers such as reading and writing on cell phones and reading on mobile devices during leisure time.

In the study, it was found that there was a significant difference between the digital reading habits of pre-service teachers favouring those who utilised web sites. This finding can be attributed to the fact that the pre-service teachers were trained in a social life and an educational process that integrated technologies and their preferences of acquiring information and entertainment using mobile phones and devices.

Significance and Suggestions

The study findings indicated that the concept of digital reading (via devices) ought to be described in the process of reading education, and the limitations should be determined in theoretical and applied studies. Because, when introducing new learning tools for use in a classroom setting, it is also important to take into consideration the attitude of educators towards the implementation of technology (Moro, Štromberga & Stirling, 2017). Study results also underlined the significance of the digital literacy training of pre-service Turkish language teachers during undergraduate education and the fact that they should receive formation training on how to use these skills in their professional lives. Pre-service teachers, who will train new generations as good digital readers, are yet to discover that they lack the skill. This issue is very important in the field of native language teaching. In this direction, updating the language curricula, textbooks and course materials based on the findings of the present study on digital reading could be beneficial. The results should also be taken into consideration in developing countries with low average in reading habits, especially outside Turkey. In conclusion, while training native language teachers such as Turkish, it may be suggested to teach the principles of digital reading, and to conduct required applications in order to train good digital readers and to teach how to use the digital media in reading instruction.

Note

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Appendix A: Digital Reading Habits Scale

	Reading psychology dimension	(1) Never	(2) Seldom	(3) Mostly	(4) Always
1.	I am interested in reading in digital media (on-screen).				
2.	I feel comfortable when reading in digital media.				
3.	I feel anxious when reading in digital media.				
4.	My reading comprehension skills are restricted when utilizing technologies for reading.				
5.	Reading in digital media increases my motivation for comprehension.				
6.	I enjoy reading the content shared on digital media.				
7.	I trust the content I read on digital devices.				
8.	I consider reading on the screen as a part of my life.				
	Daily use dimension				
9.	I regularly read on the screen in digital media.				
10.	I read in digital media whenever I need to.				
11.	I read in digital media to get information and the news.				
12.	I sometimes read in digital media for fun or chat with others.				
13.	I archive the content I am interested in or I consider important in digital media.				
14.	I prefer reading on screen instead of reading printed resources.				
15.	Even though I read digital resources, I always check printed resources when available.				
16.	I can use various electronic devices (computer, mobile phone, tablet, etc.) when reading.				
17.	I learn about new and interesting things on digital resources.				
18.	I comprehend the content better and quicker when I read it on electronic devices.				
19.	I usually comment on and share the content during digital reading.				
20.	I prefer to read using mobile and portable devices.				
21.	I become active when I need to use digital devices/screens in the classes.				
22.	I spend my spare time by reading and chatting on the mobile phone.				
23.	I rush to read the text as soon as possible when reading on the screen.				
24.	I pay attention to different resources (dictionary, comments), visuals and sounds (photograph, video, links, etc.) when reading in digital media.				
25.	I also utilize other digital media to read related content while reading on the screen.				
26.	I discuss about the content I read in digital media with others.				
	Items removed from scale				
27.	I easier reading on screen instead of reading printed resources.				
28.	I recommend the reading from digital screen my friends.				
29.	I read for to learn from the screens of computers and others.				
30.	I see reading on the screen as an advantage.				