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21st Century Skills for Sustainable Education: Prediction Level of Teachers' Information Literacy Skills on Their Digital Literacy Skills

Seda Gündüzalp
Munzur University, Tunceli, Turkey

Abstract

The current digital environment offers a unique access opportunity to information, tools, and sources for teachers to educate and teach using digital. It is vital for teachers, who have important roles to raise future generations, to have information literacy and digital literacy skills. It is essential that teachers who educate individuals raised with a technology called the Z generation to have both, information literacy and digital literacy skills. Within this context, the present study aims to define the relationship between information literacy skills and digital literacy skills of teachers in the age of digitalization, in which the transformation has been experienced in the education sector. A cross-sectional survey was used within this study, which was prepared according to the quantitative research paradigm. The research includes random and disproportionate cluster sampling methods and focuses on teachers who worked in a preschool, or in primary, secondary and high schools in the Eastern and Southeast Anatolia Regions in the 2018–2019 academic year. Structural equation modeling was used to determine to what extent teachers' information literacy skills predict their digital literacy skills. The relationship between the teachers' information literacy and digital literacy skills was calculated using Pearson product-moment correlation coefficient, and the frequency, percentage, arithmetic mean, and standard deviation values of the data collected from teachers through scales were calculated. As a result of the analysis, one of the results is that the teachers' information literacy skills affect their digital literacy skills positively.

Key words: information literacy, digital literacy, teacher, digitalization, sustainability

Introduction

Access to information from an infinite number of resources is possible in today's world, as information is a competitive element and changes rapidly. It is possible to access desired information in a short time using computers, smartphones, social and traditional media. The abundance and availability of information does not mean that individuals can use information effectively. It has become one of the most critical requirements of our time to understand whether the vast amount of knowledge obtained is

reliable and that the individual has the ability to use this information most efficiently as well as having the necessary skills to transfer this knowledge. With the rapid entry of the digital world into our lives, access to information has started to be provided by digital mediums, which means that information literacy in the digital world is mostly provided by digital means. The concepts of information literacy and digital literacy emerge as two complementary elements, at this point.

Although the definition of literacy was limited to the ability to read, to understand what is read (Blake & Hanley, 1995), possessing the comprehension skill in a particular language, the definition of the concept started changing according to the needs of the individuals (Montaya, 2018). This change is due to rapid change in technology, brought new literacy definitions such as information literacy and digital literacy, and thus, the concept of literacy began to gain different functions in today's world where social change and transformation occur (Önal, 2010). As Drucker (1992) states, knowing the answers to questions such as "which information is needed when and what type is needed and how is this information obtained?" is important in order to be information literate. Especially the need for information, abundance in information and increase in its types made the information literacy a requirement for humanity (Council of Australian University Librarians, 2001). With this requirement, presenting information in digital media with modern tools and methods enables individuals to access information while creating a complex structure easily. This structure requires individuals to have particular competence in searching the information presented in printed or electronic media using information technologies, accessing information, using the information they accessed, evaluating, and presenting by reshaping it (ALA, 1989). Information literacy, therefore, became related to digital literacy skills. The said skills require individuals to use computers, software applications, databases, and other technologies to attain their personal and occupational goals (ALA, 2000).

Teachers are important facilitators of educational sustainability (Salite, 2016; Iliško, 2019; Heasly et al., 2020; Fedosejeva et al., 2018; Pipere, 2019; Salite et al., 2020). Teachers' ability to adapt themselves to rapidly developing technologies applicable to learning environments is connected with technology integration (Çoklar & Kabakçı Yurdakul, 2017). As society has become more and more digital, the demand for digitally competent teachers has evolved exposing the need for new approaches when it comes to the integration of technology into education (Instefjord & Munthe, 2017). In addition to literacy with the changes brought about by new technologies, digital competence requires a new set of skills, knowledge and attitudes. The need to focus on education and training processes in addition to purposes such as entertainment, social communication, shopping, bill payment and sharing in the digital environment distinguishes teachers from other technology users. Digitalization in education is inevitable because most of the students are "digital natives". Educating students who are intertwined with digital tools such as tablets, phones and computers, in education processes with traditional methods, is getting harder day by day, possibly decreasing the effectiveness of education. For this reason, teachers are one of the important building blocks in providing digital integration. So what skills are effective in order for teachers to be competent in digital environments? While researching this question, it is thought that it is important to seek an answer to the question of whether the information literate teacher is also digitally literate.

Information Literacy Defined

Information literacy is a broad concept, which includes many skills such as defining and finding information, decision making, problem-solving, life-long learning, evaluating, and using the information obtained. Such information literacy, first described by Zurkowski in 1974, has become an increasingly important concept since the 1990s, becoming the subject of many publications, studied by many academics professional organizations, and educational institutions; and this indicated that educational institutions had to work with this qualification with graduate students. Committees were established in universities for this purpose and all these academics, institutions, groups and organizations carrying out studies in the field brought new definitions to the literature (Dudziak, 2003; Kurbanoglu, 2010).

Digital literacy is defined as a series of interrelated skills or competencies required for success in the digital environment (List, 2019). Information literacy has an important place among these skills and competencies (Çam & Kiyici, 2017; Vuorikari, Punie, Carretero, & Van den Brande, 2016). Eshet-Alkalai (2004) stated that it is a combination of five different elements of literacy, including information literacy, in digital literacy. In this context, it is possible to state that digital literacy skills include information literacy skills (van Laar, van Deursen, van Dijk, & de Haan, 2017). Teachers' information literacy skills also become an inevitable necessity to promote the development of the information society and quality education (Du, 2017; Gu, 2020).

The teacher who is directly involved in the development of student's digital literacy obviously needs to be prepared to have good digital literacy (Rusdiana, Setiawan, & Siahaan, 2020). On the other hand, teachers need to develop a digital awareness that allows them to choose the best environments for digital learning and teaching (Hall, Atkins, & Fraser, 2014). Teachers are expected to become digital leaders in the classroom with their digital competencies (Quaicoe & Pata, 2020). This has become a necessity by increasing the need for teachers to be digital literate (Garcia-Martin & Garcia-Sanchez, 2017).

Information literacy, which is defined as a skill for identifying information needs, and in addition for identifying, evaluating, and using information, is the process of knowing how to access and evaluate information using ethical means (Bruce, 1999). In other words, information literacy is the skill to collect existing information, organizing, using, filtering, evaluating the information and making valid inferences according to the results, and using the information effectively, efficiently, and ethically (Julien & Barker, 2009; Latham & Gross, 2008; Naik, 2014). Webber (2010) defines information literacy as the behavior requiring well-equipped individuals who can meet the information needs of the society, to have access to information and use it ethically regardless of the channel and mediator of the information. Information literacy skills are as important as basic reading and writing skills in a society where access to information and the critical evaluation of the information is at the core of economic and personal well-being (Julien & Barker, 2009). Being information literate is necessary to stay up-to-date in the rapidly changing information world (Solomon, Wilson, & Taylor, 2012). According to ALA (1989) standards, an information literate individual should possess the following information-related skills:

- Identifying the problem/need;
- Access to information on various information sources;

- Evaluate the suitability and reliability of the information accessed;
- Compiling information in a way that it can be used to meet the need for information, to solve the problem or answer the question;
- Transferring information to audiences legally and ethically through various channels.

Critical thinking, creative thinking, problem-solving, higher-order thinking, effective communication, and organization are among the transferable skills that provide a basis for acquiring the information literacy skills mentioned above (Solomon, Wilson, & Taylor, 2012). In addition, information literacy is an indispensable and even a vital skill for this century and has features as follows (Kurbanoglu, 2010):

- 1) Creating a basis for independent learning and lifelong learning,
- 2) Providing an opportunity to develop existing knowledge and skills,
- 3) Supporting the comprehension and understanding of developments,
- 4) Providing foresight,
- 5) Supporting personal, professional and intellectual growth,
- 6) Creating qualified workforce and stable societies,
- 7) Enabling the coping mechanism with the change,
- 8) Enabling new information production,
- 9) Enhancing the competitive power of not only individuals but also the nations and institutions,
- 10) Making the job finding process more manageable,
- 11) Increasing personal options;
- 12) Preventing social exclusion, and supporting the adaptation to the information society.

Being information literate is vital in all professions; however, teachers who are actively using and transferring information are expected to have high levels of information literacy skills. Teachers are expected to increase and develop their knowledge continually to stay up-to-date and be successful in the rapidly changing world; thus, this skill necessitates information literacy skills (Solomon, Wilson, & Taylor, 2012).

Digital Literacy Defined

Digital literacy is fast becoming a prerequisite for creativity, innovation and entrepreneurship and without it, citizens can neither participate fully in society nor acquire the skills and knowledge necessary to live in the 21st century (European Commission, 2003). Digital literacy, first defined by Glister (1997) as the skill to understand and use the information accessed on various digital sources, after the scope of the definition was broadened, is defined as evaluating the quality and validity of the information in a digital environment, creating new significant materials on graphical screens and reading the instructions on these screens, together with complex, cognitive, sociological and emotional skills required for users to work effectively on digital environments (Eshet, 2004; Porat, Blau, & Barak, 2018). Digital literacy means the skills, abilities, and tendencies required to use digital technologies to attain personal, professional, and work goals (Reedy & Goodfellow, 2012). Digital literacy comprises more than just the skill to use a software or a digital device; it comprises the various complex cognitive, motor, sociological, and emotional skills that individuals need to work effectively in digital environments (Eshet,

2004). In addition, it requires the critical use of digital tools (Claro et al., 2018). Digital literacy, which is one of the essential skills of the twenty-first century, is one of the most important subjects in the education sector. Digital literacy is an advantageous application since it enables the classroom environment to be used more influentially with digital sources. Cognitive, emotional, and social skills have merged technical processes with digital literacy, and these processes require the latest developments, especially within education, to be followed not only in our country but also universally (Nawaz & Kundi, 2010). Digital literacy, just like information literacy, became a necessity for all education levels starting from the first step (Karabacak & Sezgin, 2019). In the educational sector, this has brought a growing demand for the training of highly workers possessing not only traditional literacy skills (reading, writing, and mathematics) but also abilities to solve non-routine problems and to handle the type of complex information frequently present in digital contexts (Levy & Murnane, 2007). Behaving according to the requirements of our era requires changes within the student, teacher, and learning environments. The role of the teachers within this process is described as following changes and developments, educating oneself, and providing guidance to the students. Students with digital literacy and information literacy skills will see the positive effects of these skills in both their personal and professional lives in the future and will be more successful (Leffler, 2015). Lack of digital skills is an obstacle in the process of learning new digital competences using technologies and e-learning (Vitolina, 2015). Therefore, these skills enable changes to take place in learning environments and virtual applications.

The teaching profession is faced with a rapidly changing world that requires newer, broader and more sophisticated competencies than before. The fact that the change is experienced especially in computer technologies, and that digital devices and applications are ubiquitous and easily accessible, requires educators to develop their digital competencies. Teachers therefore need to be aware of the strategic importance of providing digital education, because the skills of teachers in this sense are directly reflected in educational processes and students (Benali, Kaddouri, & Azzimani, 2018).

In addition to the benefits of including digital technologies in learning processes on students' learning processes, it is no longer possible to approach students intertwined with technology by thinking independently from the digital world and ignoring this, so teachers need to have some skills in the digital world. Teacher will thrive by being able to adapt lessons according to the needs of students; being able to use digital tools effectively; being active in e-learning platforms; and collecting data about each student's individual performance concurrently.

Avoiding the dramatic effects of technological changes throughout teachers' careers is only possible if teachers have these competencies and continuous improvement. Even though it seems natural to access and use digital platforms, effective use requires being information literate (Durodolu & Mojapelo, 2020). Information literate individuals inevitably develop technology skills. Information literacy is related to information technology skills; however, it has broader implications for the education system and society. Digital literacy skills enable the individual to use computers, software applications, databases, and other technologies to attain various personal, professional, and academic goals. It is possible to say that individuals possessing information literacy skills also develop digital literacy skills, including some technological abilities (ALA, 2000). Digital literacy comprises information literacy skills such as finding and using the needed infor-

mation, and communication, cooperation and teamwork, social awareness on a digital environment, e-security awareness and creating new information (Reedy & Goodfellow, 2012).

New developments and technologies change communication, learning, the creation of information, working, and governing ways of individuals, groups, and societies (Al-Qallaf & Al-Mutairi, 2016). This new socio-technical reality requires that individuals not only have the skills and abilities regarding the use of technological tools but also have knowledge of the use of appropriate norms and practices (Meyers, Erickson, & Small, 2013). It is possible to say that being a digital literate in the 21st century is determinant in knowing when information is needed, how to find it, and how to use it effectively (Bawden, 2008). It is imperative that the information skills of teachers can influentially meet the technological and informational needs of generations needed to build information societies of the 21st century (Catts & Lau, 2008). Teachers' ability to adapt themselves to rapidly developing technologies applicable to learning environments is connected with technology integration (Çoklar & Kabakçı Yurdakul, 2017). To meet this combination, it is essential to be both information literate and digital literate. The digital environments of today offer a unique chance for teachers to access information, tools, and sources for teaching and learning. Collecting information using digital tools and presenting it in a way that facilitates students' learning according to their levels while becoming a content producer with the necessary digital skills, have become an essential 21st century skill and necessity. It is vital for teachers, who assume important roles to raise future generations, to have information literacy and digital literacy skills. It is essential for sustainable education that teachers who play a vital role in the upbringing of the future generation Z, as it is called due to their indulgence in technology, to have information literacy and digital literacy skills of the current digital age. Chien et al. (2014) showed that students in school have high expectations for technological integration in the classroom and can be defined as digital natives as they were born in the context of and grow with new generation technologies. In this case, teachers are expected to be competent enough to meet the learning needs of today's students, defined as digital natives (Anisimova, 2020; Dashtestani & Hojatpanah, 2020; Ng, 2012; Rizal, Rusdiana, Setiawan, & Siahaan, 2020; Záhorec, Hašková, & Munk, 2019).

Within this context, the present study aims to define the relationship between the information literacy and digital literacy skills of teachers, according to teacher opinions, in the age of digitalization, in which the transformation has been experienced in the education sector, as in all sectors in recent years. For this purpose, the following questions have been formulated: Is there a significant relationship between teachers' information literacy and digital literacy skills? Are teachers' information literacy skills a significant predictor of their digital literacy skills?

Research Methods

A cross-sectional survey is used in this study that aims to identify the prediction level of information literacy skills on digital literacy skills, which consist of production, resource use, application use, and support sublevels. Accordingly, information literacy is the independent variable, and digital literacy is the dependent variable.

Research Sample

Researchers used random and disproportionate cluster sampling methods with those who worked in a preschool, and in primary, secondary and high schools in the Eastern and Southeast Anatolia Regions in the 2018–2019 academic year. The cluster sampling study is appropriate when different groups are naturally formed in the scenario to be used for the study, or artificially created for various purposes, and which have similarities in terms of specific features (Yıldırım & Şimşek, 2006). Mardin, Batman, Diyarbakır, Elazığ, Şanlıurfa, Şırnak, Van, Adıyaman, Kahramanmaraş, Kars, Iğdır, and Tunceli provinces were determined as the main sampling provinces. The schools in these provinces were selected randomly from a list, and a questionnaire was distributed to 500 teachers working in these schools. However, only 342 of the distributed questionnaires were answered. The return rate was identified as 71.4 %. The Mahalanobis distance for the answered questionnaires was calculated, and the inaccurate surveys were excluded from the analysis since 15 surveys were concluded as inaccurate. Table 1 presents the demographic properties of the teachers participating in research.

Table 1

Frequency and Percentage Distributions Regarding Demographic Properties of the Working Group

Variables		1	2	3	4	5	Total
Gender		Female	Male				–
	N	160	182				342
	%	46.8	53.2				100
Job		Class teacher	Subject teacher				–
	N	69	273				342
	%	20.2	78.8				100
Seniority		1–5	6–10	11–15	16–20	21+...	–
	N	161	99	54	16	12	342
	%	47.1	28.9	15.8	4.7	3.5	100
School type		Primary school	Secondary school	High school			–
	N	76	96	169			342
	%	22.3	28.2	49.6			100
Age		21–30	31–40	41+...			–
	N	144	154	44			342
	%	42.1	45.0	12.9			100
Educational background		Bachelor's degree	Postgraduate degree				–
	N	294	48				342
	%	86.0	14.0				100

Data Collection Tools

Information Literacy Scale and *Digital Literacy Self-Efficacy Scale* were used in the collection of research data.

Information Literacy Scale

The Information Literacy Scale developed by Adigüzel (2011) is of the 5-Likert type. The scale, which consists of 29 items and 4 factors, includes 8 items in Defining Information Need factor, 11 items in Accessing Information factor, 5 items in Using Information factor, and 5 items in Ethical and Legal Regulations on Using Information factor. The overall Cronbach's alpha internal consistency reliability coefficient of the scale was calculated as .957. The internal consistency reliability for each sublevel is calculated as .833 for Defining Information Need, .895 for Accessing Information, .835 for Using Information, .814 for Ethical and Legal Regulations on Using Information. It was determined that the item-total test correlation values of the scale ranged between .53 and .71.

Digital Literacy Self-Efficacy Scale

Ocak and Karakuş (2018) developed the Digital Literacy Self-Efficacy Scale. The scale is of the 5-Likert type and consists of 35 items and 4 factors. There are 11 items in the Production factor, 10 items in the Resource Use factor, 9 items in the Application Use factor, and 5 items in the Support factor of the scale. The overall internal consistency reliability coefficient of the scale is calculated as .959. The internal consistency reliability for each sublevel is calculated as .909 for Production, .907 for Resource Use, .911 for Application Use, .959 for Support. It was determined that the item-total test correlation values of the scale ranged between .51 and .72.

Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test were applied to the scales used in the research to test the suitability of the data for factor analysis (Table 2).

Table 2

KMO and Bartlett Test Results of the Scales Used in the Research

Scale	Kaiser-Meyer-Olkin (KMO)	Bartlett's Test (sig.)	Variance Description Ratio (%)
Information Literacy	.944	14398.766	58.977
Digital Literacy Self-Efficacy Scale	.952	7333.307	59.939

According to Table 2, the KMO value for Information Literacy Scale was calculated as .944, and as .952 for Digital Literacy Self-Efficacy Scale, and it was concluded that the data structure was suitable for factor analysis considering that the KMO value is acceptable between 0.5 and 1.0 (Altunışık et al., 2010). When Bartlett's test results were analyzed, it was noted that the obtained chi-square value for both scales is significant at 0.01 level (sig. = .000), and this result stems from the multivariate normal distribution of the data. Therefore, it was at an acceptable level as a prerequisite showing that the data were suitable for factor analysis (Çokluk et al., 2010). Table 3 presents the normal distribution values of the scales used in the research.

Table 3*Normal Distribution Values of the Scales Used in the Research*

	Information Literacy	Digital Literacy Self-Efficacy Scale
Z value (Skewness)	.213	.923
Z value (Kurtosis)	-.266	.508

According to Table 3, the data of the Information Literacy and Digital Literacy Self-Efficacy Scale were distributed normally when the standardized values of Skewness and Kurtosis values (z value) were analyzed. The normality graph resulted in similar results. It can be said that there is a normal distribution since the data is distributed linearly. Table 4 presents the DFA results of the scales used in the research.

Table 4*DFA Results of the Scales Used in the Research*

Measure of Fit	Information Literacy DFA	Digital Literacy Self-Efficacy Scale DFA	Good Fit	Acceptable Fit
X ² / sd	3.58	2.77	≤ 3	≤ 4–5
AGFI	0.63	0.76	≥ 0.90	0.89–0.85
GFI	0.68	0.79	≥ 0.90	0.89–0.85
NFI	0.91	0.96	≥ 0.95	0.94–0.90
CFI	0.94	0.97	≥ 0.97	≤ 0.95
RMSEA	0.11	0.07	≤ 0.05	0.06–0.08
SRMR	0.09	0.06	≤ 0.05	0.06–0.08

Source: Medyan and Şeşen, 2011, p. 37.

The chi-square value ($\chi^2 = 68.02$, $sd = 19$, $p = 0.00$) was found to be significant in the confirmatory factor analysis conducted to verify the four-factor structure of the Digital Literacy Self-Efficacy Scale. The fit index values were calculated as $RMSEA = 0.11$, $CFI = 0.94$, $GFI = 0.68$, $AGFI = 0.63$ and $SRMR = 0.09$, $NFI = 0.91$. The chi-square value ($\chi^2 = 1333.99$, $sd = 372$, $p = 0.00$) was found to be significant again in the confirmatory factor analysis performed to confirm the factor structure of the Four-factor Information Literacy Scale. The fit index values were calculated as $RMSEA = .007$, $CFI = 0.97$, $GFI = 0.79$, $AGFI = 0.76$ and $SRMR = 0.006$, $NFI = 0.96$.

Data Analysis

The frequency, percentage, arithmetic mean, standard deviation value of the data collected from the teachers via scales were analyzed in SPSS program, and the confirmatory factor analysis of the proactive personality scale and problem-solving skills scale were analyzed in the Lisrel 8.80 program. The relationship between teachers' information literacy and digital literacy skills was calculated using the product-moment correlation coefficient. The structural equation modeling technique was used to determine to what extent teachers' literacy skills predict their digital literacy skills. The analyses were based on $p \leq .05$ and $p \leq .01$ levels.

Research Findings

The correlation values between the variables were analyzed first. Then the structure was analyzed using the structural equation modeling to determine whether there is a significant relationship between the teachers' information literacy and digital literacy skills. Table 5 presents the correlation matrix showing the relationships between the variables.

Table 5

Correlation Matrix Showing the Relationship Between Information Literacy and Digital Literacy Self-Efficacy and Sublevels

	Variables	A	B	C	D	E	F
A	Information Literacy	1	.599**	.540**	.602**	.431**	.469**
B	Digital Literacy		1	.897**	.812**	.886**	.833**
C	Production			1	.641**	.717**	.688**
D	Using Resources				1	.568**	.516**
E	Using Applications					1	.768**
F	Support						1

N = 342; $r < .01$

When Table 5 is analyzed, it can be seen that there is a significant relationship between the teachers' information literacy skills and digital literacy skills and production, resource use, application use, and support, which are the sublevels of the digital literacy skill. The correlation values were calculated as $r = .599$; $r = .540$; $r = .602$; $r = .431$; $r = .469$, respectively. Therefore, it can be said that teachers possessing high levels of information literacy skills have good digital literacy skills. In addition, the strongest correlation coefficient values were calculated respectively between resource use sublevel, digital literacy, production sublevel, support sublevel, and application use sublevel. This finding shows that the relationship between the teachers' information literacy skills and resource use sublevel is stronger than the other variables. It can be said that the 36 % of the total variance (variability) in information literacy, 35 % of the resource use sublevel, 29 % of the production sublevel, 21 % of the support sublevel, and 18 % of the application use sublevel stem from the teachers' information literacy skills when the determination coefficients ($r^2 = .36$; $r^2 = .35$; $r^2 = .29$; $r^2 = .21$; $r^2 = .18$; $p < .01$) are considered.

Figure 1 presents the structural equation model created to determine the extent to which teachers' information literacy skills predict their digital literacy skills.

Figure 1*Structural Equation Modeling for Predicting Teachers' Digital Literacy Skills*

The results show that the information literacy skills have a positive effect on digital literacy skills. This effect can be seen when the path coefficients regarding the verification of structural equation, modeling to determine the effect of teachers' information literacy skills on digital literacy skills, were analyzed ($\beta = 0,58$; $p < .05$). This finding can also be interpreted in the following way: information literacy skills affect digital literacy skills positively.

Table 6 presents the statistical values regarding the fit of the model created.

Table 6*Statistical Values Regarding the Fit of the Structural Equation Model*

Measure of Fit	Result of the Structural model	Good Fit	Acceptable Fit
X^2 / sd	3.02	≤ 3	$\leq 4-5$
AGFI	0.87	≥ 0.90	0.89-0.85
GFI	0.93	≥ 0.90	0.89-0.85
NFI	0.97	≥ 0.95	0.94-0.90
CFI	0.98	≥ 0.97	≤ 0.95
RMSEA	0.10	≤ 0.05	0.06-0.08
SRMR	0.06	≤ 0.05	0.06-0.08

Source: Medyan and Şeşen, 2011, p. 37.

It was seen that the chi-square value ($x^2 = 57.51$, $sd = 19$, $p = 0.00$) is significant in the structural equation model created to determine the extent to which the teachers' information literacy skills predict their digital literacy skills. The fit index values were calculated as $RMSEA = 0.10$, $CFI = 0.98$, $GFI = 0.93$, $AGFI = 0.87$ and $SRMR = 0.06$, $NFI = 0.97$. It can be said that the model regarding information literacy predicting digital literacy is verified.

Conclusions

In most countries of Europe and many other parts of the world, we live in a digital society, a society permeated by the digital, in which our actions are frequently mediated by digital tools, and the objects we encounter are often shaped by digital intervention (Martin & Grudziecki, 2006). Concepts, such as digitalization, digital natives, e-learning, social media, smart phones, distance education are at the center of life. With this change, students have become a growing generation intertwined with technology (Palfrey & Gasser, 2010).

The study aims to identify the relationship between the information literacy and digital literacy in the digital age according to teachers' opinions. In this context, there is a positive and significant relationship between production, resource use, application use, and support, which are the sublevels of digital literacy, and the teachers' information literacy skills and digital literacy skills. According to the correlation values obtained the results show that the teachers possessing high levels of information literacy skills have good digital literacy skills. In the study of Akkoyunlu and Kurbanoglu (2003), in which similar skills were calculated on pre-service teachers, a positive relationship was determined between the information literacy self-efficacy perception and computer self-efficacy perception. According to the results obtained from the study of Akkoyunlu and Yilmaz (2005), it was determined that as the pre-service teachers' information literacy levels increase, the internet usage frequency also increases and that the pre-service teachers usually use the internet to access information.

The strongest correlation values were found between resource use sublevel, digital literacy, production sublevel, support sublevel, and application use sublevel, respectively. This finding shows that there is a stronger relationship between the teachers' information literacy skills and resource use sublevel than other variables. Among the digital literacy skills of teachers, the resource use sublevel, which includes using digital resources such as tablets, interactive whiteboards, and projectors, has a stronger relationship with information literacy skills.

When the path coefficients regarding the verification of structural equation modeling to determine the effect of teachers' information literacy skills on digital literacy skills are analyzed, it is seen that information literacy skills have a positive effect on digital literacy skills. This finding can also be interpreted in the following way: information literacy skills affect digital literacy skills positively. It was seen that the chi-square value is significant in the structural equation model created to determine the extent to which the teachers' information literacy skills predict their digital literacy skills. It is possible to claim that the model regarding the information literacy predicting digital literacy is verified when the fit index values of the model are considered.

Informal learning and development environments are important areas where information and digital literacy are both used and developed (Meyers, Erickson, & Small, 2013). However, it is essential that professional environments for teachers develop both information literacy and digital literacy skills. This study revealed that possessing information literacy skills is an important factor for teachers in having digital literacy skills. Teachers who possess knowledge and skills on when, where, and through which resources the information needed will be accessed, recognize that the access to information can occur more efficiently in digital environments. Digital media in education determine the focus on values, attitudes, critical thinking and in the consciousness rising of students rather

than simply on knowledge acquisition (Belousa & Stakle, 2010). Teachers thrive in constant development and change, with the fact that the learning needs of students, who were born in a digital age, and whose digital needs should be met safely, cannot be met by traditional learning methods. In addition, although the literacy requirements vary according to time and place (Ferreiro, 2005), it is important to provide appropriate conditions and environments for the development of teachers within the scope of a lifelong learning philosophy.

According to the results of the present study, there is a positive effect of information literacy skills on digital literacy skills, which is one of the most important competences today. Accordingly, teachers with high information literacy skills know better how to behave in digital environments. These results reveal the importance of information literacy levels of teachers, especially since being important and productive in digital learning environments depends on digital literacy skills. It is important to investigate what other variables determine teachers' information literacy level. The variables that predict the level of information literacy can give an idea about digital literacy skills. This is recommended for the researchers investigate both information literacy and other variables that predict digital literacy for teachers.

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Correspondence concerning this paper should be addressed to Assist. Prof. Seda Gündüzalp, Turkey, Munzur University, Pertek Sakine Genç Vocational School. Email: sedagunduzalp@munzur.edu.tr