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Investigating the Relationship Between Social Studies Teacher Candidates' Attitudes Towards Information and Communication Technologies and Digital Literacy

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Article Type: Research Article
Received Date: 20.06.2024
Accepted Date: 25.11.2024
Published Date: 31.12.2024
Plagiarism: This article has been reviewed by at least two referees and scanned via a plagiarism software
Doi: 10.29329/ijlssse.2024.1081.01

Citation: Nalçacı, A., & İşler, A. M. (2024). Investigating the relationship between social studies teacher candidates' attitudes towards information and communication technologies and digital literacy. *International Journal of Life Science and Social Studies Education (IJLSSSE), 2*(1), 1-33.

Abstract

In this study, it was aimed to examine the relationship between social studies teacher candidates' attitudes towards information and communication technologies and their digital literacy. The population of the study consists of teacher candidates studying at the faculty of education in a state university in the 2024-2025 academic year. The sample of the study consisted of a total of 112 social studies teacher candidates studying in the grades 1, 2, 3 and 4 determined by convenience sampling method. In the research, data were obtained using the "Information and Communication Technologies (ICT) Attitude Scale" and "Digital Literacy Scale". In the analysis of the data, independent samples t-test was used to determine whether the scale scores showed significant differences according to gender and internet usage time, and one-way ANOVA was used to determine whether the scale scores showed significant differences according to the grade level of education and level of interest in technology. Pearson correlation analysis was used to determine whether there was a significant relationship between scale scores. It was determined that there was a significant, positive and high level relationship between social studies teacher candidates' attitudes towards information and communication technologies and their digital literacy levels. In the faculties of education, elective courses for the development of ICT and digital literacy for prospective social studies teachers can be added to the program. The content of the courses and the materials used in the courses can be enriched in terms of ICT, digital materials and web 2.0 tools can be used more.

Keywords: Digital literacy, information and communication technologies, social studies.

Introduction

Today's world is a world where rapid technological developments and digitalization are the dominant features and we are intertwined with existing technologies in every aspect of daily life. In fact, in the 21st century, digital platforms and computer technologies are used in many areas from citizenship to education, from banking transactions to shopping, from social life to personal development. In addition to these, we can say that work and school life have also become sustainable remotely thanks to computer technologies and the Internet, and that we have gone beyond being confined within four walls. In order to adapt to the developments in our age, it is necessary to have information and communication technologies (ICT) and various literacy skills such as digital literacy, technology literacy, information literacy, internet literacy, media literacy. In the current research, among these competencies, the focus is on ICT and digital literacy skills.

ICT is an extremely dynamic and vibrant concept. Technology is constantly evolving, so the concept of ICT is reshaped with up-to-date explanations depending on the developments. When we look at the historical development of ICT, it is seen that it spans quite a long period of time. However, the emergence of ICTs is generally attributed to the second half of the 20th century. Since the second half of the 20th century, computer technologies, microprocessors, virtual technologies such as the internet have shown a rapid development and thus, the integration of ICT into daily life and educational environments has started to be mentioned (İzci, 2023). When we look at the definitions of ICT in literature, it is seen that there is a common denominator. Accordingly, ICT is used as a tool in the realization of targeted learning and achievements (Koçak Usluel et al., 2007). The concepts of "information technology" and "communication technology" are often used together on the grounds that all of the technologies used to access information can also be used to communicate and everything transmitted

between individuals is considered as information. In this context, "ICT" can be defined as all kinds of materials, tools and media used for creating, transferring, storing, organizing, arranging, reproducing and sharing information (Aydoğmuş & Karadağ, 2020). In current definitions, ICT emphasizes the integration of various ICT tools (computers, hardware, software, etc.) into teaching with the aim of realizing learning-teaching activities determined by focusing on improving students' learning processes (Ok, 2024). According to a different definition, ICT includes all visual, audio, written, printed materials and internet tools that create new knowledge or enable access to existing knowledge (Çelik, 2020).

In the 21st century, the fastest way to follow the developments and changes is to use information and communication technologies effectively. The widespread use of these technologies depends on the quality of teachers who will provide effective use of ICT in schools (Aydın, 2016). According to Aydoğmuş and Karadağ (2020), there are three important points for the most effective use of ICT in the education system:

1. Availability of physical and technical infrastructure for ICT in schools,

2. Teachers' ability to use the existing infrastructure effectively and to provide students with the ability to use ICT,

3. Teachers encouraging students in the use of ICTs and making them aware of critical perspectives.

Integration of ICT into educational environments will be provided in the most effective way if these three important elements are found together (Aydoğmuş & Karadağ, 2020). As a result of rapid developments in technology, great changes are taking place in the field of education and traditional learning methods are differentiating (Ok, 2024). It is predicted that the teaching environments of future generations will be different from today's teaching environments. Because today's teaching environments have also experienced some changes compared to the teaching environments of past generations. It can be said that students and teachers, who are the main elements that constitute the quality of learning-teaching environments that are in constant change and development, are the most affected by the differentiating process (Çelik, 2020). Thanks to ICT, the learning process has gone beyond the boundaries of the school and has become an action that can be carried out wherever there is access to technology. In schools, in order for teachers to be able to provide this skill to students, they must first be able to use ICT competently themselves. In support of the current view, it is stated that what is expected from today's teachers and prospective teachers of the future is to master ICT and to be able to provide this competence to students (Bağcı et al., 2020). Teachers who are born and raised in the age of technology, who adopt the presence of technology in all areas of life and who will educate the new generation who are conscious in the use of technology, are expected to closely follow the advances in technology, use existing technologies effectively and integrate them into teaching (Akgün, 2020).

It is important for teachers to develop positive attitudes towards ICTs in order to become competent ICT users. In the Turkish Language Association (TLA) dictionary, attitude is defined as "the way and attitude"; another word equivalent is "behavior" (TLA, 2023). According to a more comprehensive definition, attitude is the cognitive, affective and

behavioral reactions that individuals form about themselves or any event, subject or object in their environment based on their knowledge and experiences (İnceoğlu, 2011). In this context, it is an undeniable fact that teachers and prospective teachers will be somewhat incomplete in adapting to ICT without developing positive attitudes towards ICT. In a research on the subject, teachers' attitudes towards ICT were examined and as a result of the research, it was found that teachers stated that ICT increased achievement for both students and teachers, made the lesson more interesting for students, and made the teaching process more effective (Cüre & Özdener, 2008). These positive attitudes and beliefs that teachers develop towards ICT will positively affect the integration of ICT into educational environments. By integrating technology into education, traditional classroom environments can be enriched and made more interactive. By presenting various materials such as virtual applications, digital platforms, simulations, artificial intelligence and virtual reality in learning environments, more interesting and meaningful learning can be realized for students (Ok, 2024). In this way, it can be ensured that teachers as well as students develop positive attitudes towards ICT and lessons. In this context, a common ground can be reached that attitudes towards ICTs are of critical importance.

Rapid developments in ICT require individuals to be able to use emerging technologies effectively and to strengthen their digital competencies. This rapid transformation process in ICT shows that society and therefore educational needs have also changed. Because the purpose of education is to raise individuals to meet the needs of society. Therefore, today's education system aims to raise individuals who can adapt to progress in science and technology, have critical thinking and reasoning skills, solve problems, know how and where to access the right information, and evaluate the information they access correctly (Karaman & Akbaba, 2020). All these characteristics are also the characteristics of a digitally literate individual. In this context, it can be said that students' digital literacy skills should be developed in order to raise individuals who can adapt to the information and communication technologies of the modern age.

The concept of digital literacy was first introduced to literature in 1997 by Paul Gilster (as cited in Spante et al., 2018). According to one of the widely accepted definitions in the literature, digital literacy is the ability of people to develop awareness, attitudes and skills to use digital materials, to access digital channels, to evaluate the channels they access correctly, to synthesize and analyze, to produce original information, to communicate with individuals and to include this process in their social life through various social activities (Martin, 2005). In other words, digital literacy is a multidimensional competence that requires the combination of high-level thinking and literacy skills of the 21st century in order to adapt to developments in the virtual world. Digital literacy is all the skills necessary to use virtual technologies effectively in social, economic and cultural terms, to evaluate communication resources, to recognize the dangers of the digital transformation process, and to adapt to the digital age in the most general terms (Bayrakcı, 2020). Digital literacy can be used to access the right information and documents on online platforms, to use the online information and documents in place and correctly, and thus to pave the way for education and training to be carried out through the internet (Çakmak & Aslan, 2018). However, the concept of digital literacy should not be limited to researching and finding things. Beyond this, the ability to

incorporate and use the information obtained in virtual media into daily life also falls within the scope of digital literacy (Karabacak & Sezgin, 2019).

The new generation that opens its eyes to the digitalized world and grows up intertwined with today's technologies is referred to as "digital natives" (Prensky, 2001). Considering the fact that digital natives are prone to all virtual technologies, it is critical that the new generation of teachers and teacher candidates who will teach this generation are also effective digital literates. Otherwise, it will be inevitable that there will be extreme difficulties in keeping up with the new generations who have a digital predisposition from the moment they are born, let alone raising individuals who will meet the needs of our age. At this point, teachers and the faculties of education, which train new teachers, have a great responsibility. In particular, the direct inclusion of digital literacy, information literacy and communication skills in the Social Studies Curriculum (Ministry of National Education [MoNE], 2024) draws social studies teacher candidates to the center of the relevant subject.

As can be seen, for digital literacy, it is necessary to have skills such as being able to access, produce and share accurate information, communicate, and use technology effectively in teaching processes with the correct use of various technologies (Hamutoğlu et al., 2017). Considering all these virtues, it comes to mind that there may be a close relationship between information and communication technologies and digital literacy skills. Especially in today's education systems, both ICT and digital literacy skills are of great importance. Within the scope of the social studies course, it is aimed to develop positive attitudes towards ICT and to use ICT effectively in daily life by including skills such as digital literacy, information literacy, technology literacy and communication. It is assumed that the attitudes of social studies teacher candidates towards ICT and their digital literacy levels can be improved by associating both concepts with each other. Based on this assumption, the main problem of the current research is whether there is a significant relationship between social studies teacher candidates' attitudes towards information and communication technologies and their digital literacy levels. In this context, answers to the following sub-problems were sought:

1. What is the level of social studies teacher candidates' attitudes towards information and communication technologies?

2. Is there a statistically significant difference in social studies teacher candidates' attitudes towards information and communication technologies according to gender, grade level of education, level of interest in technology, internet usage time variables?

3. What is the digital literacy level of social studies teacher candidates?

4. Is there a statistically significant difference in the digital literacy levels of social studies teacher candidates according to the gender, grade level of education, level of interest in technology, internet usage time variables?

5. Is there a significant relationship between social studies teacher candidates' attitudes towards information and communication technologies and their digital literacy levels?

When the national literature on ICT is examined (Akgün, 2020; Aydın, 2016; Aydoğmuş & Karadağ, 2020; Bağcı et al., 2020; Cüre & Özdener, 2008; Güleli, 2015; İzci,

2023; Karaoğlan Yılmaz et al., 2014; Koçak Usluel et al., 2007; Odabaşı & Kabakçı, 2007; Ok, 2024; Şad & Nalçacı, 2015; Turan, 2011; Yıldırım et al., 2015), it is seen that many studies have been conducted and they are evaluated through different variables. It was determined that most of the studies examined on the related subject were conducted for teachers and teacher candidates, and some suggestions and solutions were tried to be developed for the missing issues. When the national literature on digital literacy is examined (Balcı, 2023; Bayrakcı, 2020; Çelik, 2021; Çelikkaya & Köşker, 2023; Duran & Ertan Özen, 2018; Gökbulut, 2021; Göldağ, 2021; Hamutoğlu et al., 2017; Karabacak & Sezgin, 2019; Keskin & Küçük, 2021; Kozan, 2018; Ocak & Karakuş, 2019; Özoğlu & Kaya, 2021; Pala, 2019; Yazıcıoğlu et al, 2020; Yılmaz, 2021; Zurnacı Parlak, 2019), especially in the current literature, digital literacy is emphasized quite frequently. Different studies have been conducted on digital literacy for many age groups and various variables. However, when both topics are examined within the context of education and social studies education, there is no study examining the relationship between social studies teacher candidates' attitudes towards information and communication technologies and their digital literacy levels. It is thought that this study will make an important contribution to the related literature in terms of associating the concepts of ICT and digital literacy in the context of social studies course.

Method

Research Design

In this study, relational survey method, one of the quantitative research models, was preferred in order to examine whether there is a significant relationship between social studies teacher candidates' attitudes towards information and communication technologies and their digital literacy. Relational research method is used to see the relationship between two or more variables, that is, whether the variables affect each other (Tekbıyık, 2019, p.164). Teacher candidates' attitudes towards information and communication technologies and digital literacy levels were examined in terms of gender, grade level of education, interest in technology, and internet usage time variables.

Universe and Sample

The population of the study consists of teacher candidates studying at the faculty of education in a state university in the 2024-2025 academic year. The sample of the study was determined by convenience sampling method. The reason for choosing this sampling method was that there was no obligation to attend classes for the first five weeks in the faculty where data collection was planned in the specified period after the earthquake. The sample group consisted of 112 social studies teacher candidates who participated in face-to-face classes and were considered to represent the population.

Data Collection Tools

"Personal Information Form" developed by the researchers, "Information and Communication Technologies (ICT) Attitude Scale" developed by Günbatar (2014) and "Digital Literacy Scale" adapted by Hamutoğlu et al. (2017) were used to collect the research data. Detailed information about the personal information form and scales is given below.

Personal Information Form

The personal information form was prepared to determine the gender, grade level of education, level of interest in technology and internet usage time of the teacher candidates participating in the study.

Information and Communication Technologies (ICT) Attitude Scale

The Information and Communication Technologies (ICT) Attitude Scale was developed by Günbatar (2014). The 5-point likert-type scale (5=totally agree, 4=agree, 3=undecided, 2=disagree, 1=totally disagree) consists of a total of 23 items and 5 sub-dimensions ("General ICT Tendency", "Access to Information in Virtual Environment", "Computer Hardware", "Software Usage", "Communication in Virtual Environment"). There are no reverse scored items in the scale. Internal consistency coefficient (Cronbach Alpha) and test-retest methods were used to assess the reliability of the scale. Accordingly, the internal consistency coefficient obtained was .91 for the whole scale, .89 for the "General ICT Tendency" sub-dimension, .88 for the "Access to Information in Virtual Environment" sub-dimension, .88 for the "Computer Hardware" sub-dimension, .82 for the "Software Usage" sub-dimension, and .76 for the "Communication in Virtual Environment" sub-dimension.

Digital Literacy Scale

Digital Literacy Scale was developed by Ng (2012). It was adapted into Turkish by Hamutoğlu et al. (2017). The 5-point Likert-type scale (5=totally agree, 4=agree, 3=undecided, 2=disagree, 1=totally disagree) consists of 17 items and 4 sub-dimensions ("Attitude", "Technical", "Cognitive", "Social"). There are no reverse scored items in the scale. Internal consistency coefficient (Cronbach Alpha) and test-retest methods were used to assess the reliability of the scale. Accordingly, the internal consistency coefficient obtained was .93 for the whole scale, .88 for the "Attitude" sub-dimension, .89 for the "Technical" sub-dimension, .70 for the "Cognitive" sub-dimension and .72 for the "Social" sub-dimension. After the Turkish and English forms of the scale were found to be linguistically equivalent, the construct validity of the scale was examined with EFA and CFA. The KMO sample suitability coefficient (.91) and Barlett Sphericity test value (1549.40, $p<.001$, sd=136) were found to be perfectly suitable for factor analysis of the data obtained from 185 students for EFA.

Data Collection

After obtaining permission for the research, the data collection process was initiated. During the data collection process, social studies teacher candidates were informed about the purpose of the research. Volunteer teacher candidates were given an average of 15-20 minutes to answer the data collection tools.

Data Analysis

The data obtained in this study were analyzed using SPSS 29.0 software. Firstly, it was tested whether the scale scores were normally distributed. For this purpose, coefficient of variation, Skewness/Kurtosis values, Shapiro-Wilk values, histogram graphs, Normal Q-Q Plot graphs, Detrended Q-Q Plot graphs and Box Plot graphs were analyzed. It was determined that the data were normally distributed and accordingly, one-sample t-test was used to determine

the attitudes towards ICT and digital literacy levels of social studies teacher candidates, independent samples t-test was used to determine whether the scale scores showed significant differences according to gender and internet usage time, and one-way ANOVA was used to determine whether the scale scores showed significant differences according to the class of study and the level of interest in technology. Pearson correlation analysis was used to determine whether there was a significant relationship between the scale scores.

Ethical Permits of Research:

In this study, all the rules specified to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were complied with. None of the actions specified under the heading "Actions Contrary to Scientific Research and Publication Ethics", which is the second part of the directive, have been taken.

Ethics Committee Permission Information:

Name of the committee that made the ethical evaluation= Kahramanmaraş Sütçü İmam University Social Sciences and Humanities Scientific Research and Publication Ethics Committee

Date of ethical review decision= 03.05.2024

Ethics assessment document issue number= 2024/04/26

Findings

In this section of the study, the findings that emerged as a result of the analysis of the data obtained from the "Information and Communication Technologies (ICT) Attitude Scale" and "Digital Literacy Scale" are presented.

In order to determine the levels of social studies teacher candidates' attitudes towards ICT and its sub-dimensions, the mean scores of attitudes towards ICT and its sub-dimensions were subjected to one-sample t-test against the expected mean. One sample t-test results are presented in Table 1.

Table 1.

Levels of Prospective Social Studies Teacher Candidates' Attitudes Towards ICT and its Sub-Dimensions

	N	*M*	*SD*	Expected mean	*df*	*t*	*p*
General ICT tendency	112	3.84	.62	3	111	14.357	.000
Access to information in virtual environment	112	4.14	.53	3	111	22.835	.000
Computer hardware	112	2.31	1.07	3	111	-6.813	.000
Software usage	112	3.82	.57	3	111	15.283	.000
Communication in virtual environment	112	3.46	.76	3	111	6.365	.000
ICT	112	3.51	.47	3	111	11.669	.000

According to Table 1, the mean scores of social studies teacher candidates' attitudes towards ICT differ significantly from the expected mean ($t_{(111)}$=11.669; p<.05). The significant difference is in favor of the mean scores of social studies teacher candidates' attitudes towards ICT. Accordingly, social studies teacher candidates' attitude towards ICT score levels are significantly high.

According to Table 1, the mean scores of social studies teacher candidates' attitudes towards ICT sub-dimensions (general ICT tendency, access to information in virtual environment, computer hardware, software usage, communication in virtual environment) differ significantly from the expected mean ($t_{(111)}$=14. 357; p<.05; $t_{(111)}$=22.835; p<.05; $t_{(111)}$=-6.813; p<.05; $t_{(111)}$=15.283; p<.05; $t_{(111)}$=6.365; p<.05). While the significant difference is in favor of the mean scores of general ICT tendency, access to information in virtual environment, software usage, communication in virtual environment sub-dimensions of social studies teacher candidates' attitudes towards ICT, it is against the computer hardware sub-dimension. Accordingly, social studies teacher candidates' general ICT tendency, access to information in virtual environment, software usage, communication in virtual environment score levels are significantly higher. The score levels of social studies teacher candidates' computer hardware sub-dimensions of attitudes towards ICT are significantly low.

The results of the independent samples t-test used to determine whether the levels of social studies teacher candidates' attitudes towards ICT and its sub-dimensions show a significant difference according to gender are shown in Table 2.

Table 2.

Levels of Social Studies Teacher Candidates' Attitudes Towards ICT and Its Sub-Dimensions by Gender

	Gender	*N*	*M*	*SD*	*df*	*t*	*p*
General ICT tendency	Female	83	3.92	.56	110	2.324	.022
	Male	29	3.61	.72			
Access to information in virtual environment	Female	83	4.14	.52	110	.179	.859
	Male	29	4.12	.56			
Computer hardware	Female	83	2.11	.96	110	-3.427	.000
	Male	29	2.87	1.18			
Software usage	Female	83	3.88	.54	110	1.991	.049
	Male	29	3.64	.61			
Communication in virtual environment	Female	83	3.57	.72	110	2.601	.011
	Male	29	3.15	.79			
ICT	Female	83	3.53	.45	110	.449	.654
	Male	29	3.48	.50			

When Table 2 is examined, it is seen that social studies teacher candidates' attitudes towards ICT do not show a significant difference according to gender ($t_{(110)}$=.449; p>.05). In other words, social studies teacher candidates' attitudes towards ICT do not show a significant difference according to whether they are a female or male.

Again, when Table 2 is examined, it is seen that social studies teacher candidates' attitude towards ICT sub-dimension access to information in virtual environment does not show a significant difference according to gender ($t_{(110)}$=.179; p>.05). On the other hand, it is seen that the levels of general ICT tendency, computer hardware, software usage and communication in virtual environment, which are sub-dimensions of social studies teacher candidates' attitudes towards ICT, show a significant difference according to gender ($t_{(110)}$= 2.324; p<.05; $t_{(110)}$= -3.427; p<.05; $t_{(110)}$= 1.991; p<.05; $t_{(110)}$= 2.601; p<.05). It was found that there was a significant difference in favor of female students in general ICT tendency, software usage and communication in virtual environment levels, and in favor of male students in computer hardware level.

The results of one-way analysis of variance (ANOVA) conducted to determine whether the levels of social studies teacher candidates' attitudes towards ICT and its sub-dimensions show a significant difference according to grade level of their education are presented in Table 3 and Table 4.

Table 3.

Levels of Social Studies Teacher Candidates' Attitudes Towards ICT and Its Sub-Dimensions According to the Grade Level of Their Education

	Grade level of education	*N*	*M*	*SD*
General ICT tendency	Grade 1	32	3.80	.68
	Grade 2	25	3.68	.48
	Grade 3	30	3.90	.71
	Grade 4	25	3.99	.52
Access to information in virtual environment	Grade 1	32	4.23	.53
	Grade 2	25	3.86	.37
	Grade 3	30	4.15	.58
	Grade 4	25	4.30	.51
Computer hardware	Grade 1	32	2.29	1.10
	Grade 2	25	2.23	.91
	Grade 3	30	2.33	1.20
	Grade 4	25	2.39	1.08
Software usage	Grade 1	32	3.83	.69
	Grade 2	25	3.54	.37
	Grade 3	30	3.83	.50
	Grade 4	25	4.07	.54
Communication in virtual environment	Grade 1	32	3.26	.66
	Grade 2	25	3.27	.65
	Grade 3	30	3.67	.77
	Grade 4	25	3.65	.89
ICT	Grade 1	32	3.48	.45
	Grade 2	25	3.32	.34
	Grade 3	30	3.57	.51
	Grade 4	25	3.68	.49

When the statistics of the levels of social studies teacher candidates' attitudes towards ICT and its sub-dimensions in terms of the grade level of their education are examined, it is seen that the arithmetic averages of the teacher candidates studying in the grade 4 are high in all dimensions except the "communication in virtual environment" sub-dimension. The findings regarding whether there is a significant difference between the arithmetic averages are given in Table 4.

Table 4.

ANOVA Findings of Social Studies Teacher Candidates' Attitudes Towards ICT and Its Sub-Dimensions According to the Grade Level of Their Education

		Sum of squares	*df*	Mean of squares	*F*	*p*	Significant difference
General ICT tendency	Between groups	1.345	3	.448	1.173	.324	-
	Within groups	41.287	108	.382			
	Total	42.633	111				
Access to information in virtual environment	Between groups	2.921	3	.974	3.752	.013	4>2
	Within groups	28.026	108	.259			
	Total	30.947	111				
Computer hardware	Between groups	.350	3	.117	.099	.960	
	Within groups	127.055	108	1.176			
	Total	127.406	111				
Software usage	Between groups	3.497	3	1.166	3.903	.011	4>2
	Within groups	32.259	108	.299			
	Total	35.757	111				
Communication in virtual environment	Between groups	4.425	3	1.475	2.653	.052	
	Within groups	60.048	108	.556			
	Total	64.472	111				
ICT	Between groups	1.832	3	.611	2.963	.035	4>2
	Within groups	22.257	108	.206			
	Total	24.089	111				

When Table 4 is examined, it is seen that there is a significant difference in social studies teacher candidates' attitudes towards ICT and its sub-dimensions access to information in virtual environment and software usage according to the grade level of their education ($F_{(3-108)}$= 2.963; p<.05; $F_{(3-108)}$= 3.752; p<. 05; $F_{(3-108)}$= 3.903; p<.05), while the sub-dimensions of general ICT tendency, computer hardware and communication in virtual environment did not differ significantly according to the grade levels ($F_{(3-108)}$= 1.173; p<.05; $F_{(3-108)}$= .099; p<.05; $F_{(3-108)}$= 2.653; p<.05). The significant differences are between the grade 4 and grade 2 students and this significant difference is in favor of the grade 4 students.

The results of one-way analysis of variance (ANOVA) conducted to determine whether the levels of social studies teacher candidates' attitudes towards ICT and its sub-dimensions show a significant difference according to their level of interest in technology are presented in Table 5 and Table 6.

Table 5.

Levels of Social Studies Teacher Candidates' Attitudes Towards ICT and Its Sub-Dimensions According to Their Level of Interest in Technology

	Level of interest in technology		*N*	*M*	*SD*
General ICT tendency	1	I am partially interested	37	3.67	.50
	2	I am interested	56	3.80	.59
	3	I am fully interested	19	4.29	.73
Access to information in virtual environment	1	I am partially interested	37	3.91	.51
	2	I am interested	56	4.18	.49
	3	I am fully interested	19	4.47	.50
Computer hardware	1	I am partially interested	37	1.93	.81
	2	I am interested	56	2.58	1.09
	3	I am fully interested	19	2.26	1.27
Software usage	1	I am partially interested	37	3.57	.46
	2	I am interested	56	3.93	.57
	3	I am fully interested	19	3.99	.60
Communication in virtual environment	1	I am partially interested	37	3.20	.80
	2	I am interested	56	3.60	.74
	3	I am fully interested	19	3.54	.65
ICT	1	I am partially interested	37	3.25	.32
	2	I am interested	56	3.62	.50
	3	I am fully interested	19	3.71	.41

When the statistics of social studies teacher candidates' attitudes towards ICT and its sub-dimensions and their levels of interest in technology are examined, it is seen that the arithmetic mean of the teacher candidates who stated "I am partially interested" level is lower than the teacher candidates who stated "I am interested" and "I am fully interested" level. The findings regarding whether there is a significant difference between the arithmetic averages are given in Table 6.

Table 6.

ANOVA Findings of Social Studies Teacher Candidates' Attitudes Towards ICT and Its Sub-Dimensions According to Their Level of Interest in Technology

		Sum of squares	*df*	Mean of squares	*F*	*p*	Significant difference
General ICT tendency	Between groups	5.024	2	2.512	7.281	.001	3>1 3>2
	Within groups	37.608	109	.345			
	Total	42.633	111				
Access to information in virtual environment	Between groups	4.082	2	2.041	8.281	.000	2>1 3>1
	Within groups	26.865	109	.246			
	Total	30.947	111				
Computer hardware	Between groups	9.600	2	4.800	4.441	.014	2>1
	Within groups	117.806	109	1.081			
	Total	127.406	111				
Software usage	Between groups	3.564	2	1.782	6.033	.003	2>1 3>1
	Within groups	32.193	109	.295			
	Total	35.757	111				
Communication in virtual environment	Between groups	3.786	2	1.893	3.400	.037	2>1
	Within groups	60.687	109	.557			
	Total	64.472	111				
ICT	Between groups	3.842	2	1.921	10.341	.000	2>1 3>1
	Within groups	20.247	109	.186			
	Total	24.089	111				

When Table 6 is examined, it is seen that the levels of social studies teacher candidates' attitudes towards ICT and its sub-dimensions show a significant difference according to their level of interest in technology ($F_{(2-109)}$= 7. 281; p<.05; $F_{(2-109)}$= 8.281; p<.05; $F_{(2-109)}$= 4.441; p<.05; $F_{(2-109)}$= 6.033; p<.05; $F_{(2-109)}$= 3.400; p<.05; $F_{(2-109)}$= 10.341; p<.05).

It was determined that there was a significant difference between "I am partially interested" and "I am interested" in favor of "I am interested" in the level of interest in technology in all levels of social studies teacher candidates' attitudes towards ICT and its sub-dimensions, and between "I am partially interested" and "I am fully interested" in favor of "I am fully interested" in general ICT tendency, access to information in virtual environment, software usage sub-dimensions and total attitude levels.

The results of the independent samples t-test used to determine whether the levels of social studies teacher candidates' attitudes towards ICT and its sub-dimensions show a significant difference according to their internet usage time are shown in Table 7.

Table 7.

Levels of Social Studies Teachers' Attitudes Towards ICT and Its Sub-Dimensions According to their Internet Usage Time

	Internet usage time	*N*	*M*	*SD*	*df*	*t*	*p*
General ICT tendency	up to 3 hours	44	3.77	.46	110	-1.039	.301
	More than 3 hours	68	3.89	.70			
Access to information in virtual environment	up to 3 hours	44	3.99	.48	110	-2.524	.013
	More than 3 hours	68	4.24	.54			
Computer hardware	up to 3 hours	44	2.26	1.04	110	-.387	.699
	More than 3 hours	68	2.34	1.10			
Software usage	up to 3 hours	44	3.74	.51	110	-1.183	.239
	More than 3 hours	68	3.87	.60			
Communication in virtual environment	up to 3 hours	44	3.38	.88	110	-.888	.377
	More than 3 hours	68	3.51	.68			
ICT	up to 3 hours	44	3.43	.43	110	-1.604	.112
	More than 3 hours	68	3.57	.48			

When Table 7 is examined, it is seen that the level of social studies teacher candidates' attitudes towards ICT does not show a significant difference according to their internet usage time ($t_{(110)}$= -1.604; p>.05).

Again, when Table 7 is examined, it is seen that social studies teacher candidates' attitudes towards ICT sub-dimension general ICT tendency, computer hardware, software usage and communication in virtual environment levels do not show a significant difference according to their internet usage time ($t_{(110)}$= -1.039; p>.05; $t_{(110)}$= -.387; p>.05; $t_{(110)}$= -1.183; p>.05; $t_{(110)}$= -.888; p>.05). In addition, it was determined that the levels of access to information in the virtual environment of social studies teacher candidates' attitudes towards ICT sub-dimension showed a significant difference according to their internet usage time ($t_{(110)}$= -2.524; p<.05). It was determined that there was a significant difference in favor of those who used the internet for more than 3 hours in the levels of access to information in virtual environment.

In order to determine the levels of digital literacy and its sub-dimensions of social studies teacher candidates, the mean scores of digital literacy and its sub-dimensions were subjected to a one-sample t-test against the expected mean. One sample t-test results are presented in Table 8.

Table 8.

Social Studies Teacher Candidates' Levels of Digital Literacy and Its Sub-Dimensions

	N	*M*	*SD*	Expected mean	*df*	*t*	*p*
Attitude	112	3.98	.63	3	111	16.541	.000
Technical	112	3.67	.67	3	111	10.571	.000
Cognitive	112	3.70	.74	3	111	9.987	.000
Social-emotional	112	3.83	.76	3	111	11.593	.000
Digital literacy	112	3.80	.54	3	111	15.598	.000

According to Table 8, the mean digital literacy scores of social studies teacher candidates differ significantly from the expected mean ($t_{(111)}$=15.598; p<.05). The significant difference is in favor of social studies teacher candidates' mean digital literacy scores. Accordingly, social studies teacher candidates' digital literacy score levels are significantly higher.

According to Table 8, social studies teacher candidates' digital literacy sub-dimension (attitude, technical, cognitive, social-emotional) mean scores differ significantly from the expected mean ($t_{(111)}$=16.541; p<.05; $t_{(111)}$=10.571; p<.05; $t_{(111)}$=9.987; p<.05; $t_{(111)}$=11.593; p<.05). The significant difference is in favor of the mean scores of attitude, technical, cognitive and social-emotional sub-dimensions of digital literacy sub-dimensions of social studies teacher candidates. Accordingly, social studies teacher candidates' attitude, technical, cognitive and social-emotional score levels from digital literacy sub-dimensions is significantly higher.

The results of the independent samples t-test used to determine whether social studies teacher candidates' levels of digital literacy and its sub-dimensions show a significant difference according to gender are shown in Table 9.

Table 9.

Levels of Social Studies Teachers' Digital Literacy and its Sub-Dimensions by Gender

	Gender	*N*	*M*	*SD*	*df*	*t*	*p*
Attitude	Female	83	3.97	.65	110	-.493	.623
	Male	29	4.03	.56			
Technical	Female	83	3.76	.67	110	-2.554	.012
	Male	29	3.94	.61			
Cognitive	Female	83	3.66	.74	110	-.921	.359
	Male	29	3.81	.76			
Social-emotional	Female	83	3.82	.73	110	-.261	.795
	Male	29	3.86	.83			
Digital literacy	Female	83	3.76	.54	110	-1.330	.186
	Male	29	3.91	.54			

When Table 9 is examined, it is seen that the digital literacy levels of social studies teacher candidates do not show a significant difference by gender ($t_{(110)}$=-1.330; p>.05). In other words, social studies teacher candidates' digital literacy levels do not show a significant difference according to whether they are female or male.

Again, when Table 9 is examined, it is seen that the attitude, cognitive and social-emotional levels of social studies teacher candidates' digital literacy sub-dimensions do not show a significant difference by gender ($t_{(110)}$=-.493; p>.05; $t_{(110)}$=-.921; p>.05; $t_{(110)}$=-.261; p>.05). In addition, it is seen that the technical levels of social studies teacher candidates' digital literacy sub-dimensions show a significant difference by gender ($t_{(110)}$=-2.554; p<.05). It was determined that there was a significant difference in favor of male students in the technical sub-dimension levels.

The results of one-way analysis of variance (ANOVA) conducted to determine whether social studies teacher candidates' levels of digital literacy and its sub-dimensions show a significant difference according to grade level of their education are presented in Table 10 and Table 11.

Table 10.

Social Studies Teacher Candidates' Levels of Digital Literacy and Its Sub-Dimensions According to the Grade Level of Their Education

	Grade level of education	*N*	*M*	*SD*
Attitude	Grade 1	32	4.02	.57
	Grade 2	25	3.70	.43
	Grade 3	30	4.05	.77
	Grade 4	25	4.15	.63
Technical	Grade 1	32	3.56	.72
	Grade 2	25	3.41	.47
	Grade 3	30	3.76	.70
	Grade 4	25	3.97	.64
Cognitive	Grade 1	32	3.70	.60
	Grade 2	25	3.38	.71
	Grade 3	30	3.78	.84
	Grade 4	25	3.92	.67
Social-emotional	Grade 1	32	3.94	.72
	Grade 2	25	3.52	.67
	Grade 3	30	3.82	.71
	Grade 4	25	4.02	.88
Digital literacy	Grade 1	32	3.80	.47
	Grade 2	25	3.50	.45
	Grade 3	30	3.57	.51
	Grade 4	25	3.68	.49

When the statistics of social studies teacher candidates' levels of digital literacy and its sub-dimensions in terms of grade level of their education are examined, it is seen that the arithmetic averages of the teacher candidates studying in the grade 4 in all sub-dimensions and the arithmetic averages of the teacher candidates studying in the grade 1 in general literacy are high. The findings on whether there is a significant difference between the arithmetic averages are given in Table 11.

Table 11.

ANOVA Findings of Social Studies Teacher Candidates' Levels of Digital Literacy and its Sub-Dimensions According to Grade Level of Their Education

		Sum of squares	*df*	Mean of squares	*F*	*p*	Significant difference
Attitude	Between groups	2.911	3	.970	2.547	.060	-
	Within groups	41.144	108	.381			
	Total	44.055	111				
Technical	Between groups	4.589	3	1.530	3.647	.015	4>2
	Within groups	45.298	108	.419			
	Total	49.888	111				
Cognitive	Between groups	3.979	3	1.326	2.502	.063	
	Within groups	57.251	108	.530			
	Total	61.230	111				
Social-emotional	Between groups	3.680	3	1.227	2.205	.092	
	Within groups	60.097	108	.556			
	Total	63.777	111				
Digital literacy	Between groups	3.463	3	1.154	4.307	.007	4>2
	Within groups	28.947	108	.268			
	Total	32.410	111				

When Table 11 is examined, it is seen that there is a significant difference in the technical level of social studies teacher candidates' digital literacy and its sub-dimensions according to grade levels of their education ($F_{(3-108)}$= 4.307; p<.05; $F_{(3-108)}$= 3. 647; p<.05), and there was no significant difference in the attitude, cognitive and social-emotional levels of the sub-dimensions according to the grade level of their education ($F_{(3-108)}$= 2.547; p<.05; $F_{(3-108)}$=2.502; p<.05; $F_{(3-108)}$= 2.205; p<.05). Significant differences are between the grade 4 and grade 2 students and this significant difference is in favor of the grade 4 students.

The results of one-way analysis of variance (ANOVA) conducted to determine whether social studies teacher candidates' levels of digital literacy and its sub-dimensions show a significant difference according to their level of interest in technology are presented in Table 12 and Table 13.

Table 12.

Levels of Social Studies Teacher Candidates' Digital Literacy and Its Sub-Dimensions According to Their Level of Interest in Technology

	Level of interest in technology		*N*	*M*	*SD*
Attitude	1	I am partially interested	37	3.78	.55
	2	I am interested	56	3.98	.47
	3	I am fully interested	19	4.38	.94
Technical	1	I am partially interested	37	3.36	.54
	2	I am interested	56	3.76	.60
	3	I am fully interested	19	4.02	.84
Cognitive	1	I am partially interested	37	3.51	.65
	2	I am interested	56	3.75	.69
	3	I am fully interested	19	3.92	.96
Social-emotional	1	I am partially interested	37	3.54	.77
	2	I am interested	56	3.97	.69
	3	I am fully interested	19	3.97	.81
Digital literacy	1	I am partially interested	37	3.55	.47
	2	I am interested	56	3.87	.47
	3	I am fully interested	19	4.07	.68

When the statistics of social studies teacher candidates' levels of digital literacy and its sub-dimensions and their levels of interest in technology are examined, it is seen that the arithmetic mean of the teacher candidates who stated "I am partially interested" level is lower than the teacher candidates who stated "I am interested" and "I am fully interested" level. The findings on whether there is a significant difference between the arithmetic averages are given in Table 13.

Table 13.

ANOVA Findings of Social Studies Teacher Candidates' Levels of Digital Literacy and Its Sub-Dimensions According to Their Level of Interest in Technology

		Sum of squares	*df*	Mean of squares	*F*	*p*	Significant difference
Attitude	Between groups	4.402	2	2.201	6.050	.003	3>1
	Within groups	39.653	109	.364			
	Total	44.055	111				
Technical	Between groups	6.389	2	3.195	8.005	.001	2>1 3>1
	Within groups	43.499	109	.399			
	Total	49.888	111				
Cognitive	Between groups	2.355	2	1.178	2.180	.118	-
	Within groups	58.875	109	.540			
	Total	61.230	111				
Social-emotional	Between groups	4.641	2	2.320	4.277	.016	2>1
	Within groups	59.136	109	.543			
	Total	63.777	111				
Digital literacy	Between groups	3.996	2	1.998	7.664	.001	2>1 3>1
	Within groups	28.414	109	.261			
	Total	32.410	111				

When Table 13 is examined, it is seen that social studies teacher candidates show a significant difference according to their level of interest in technology, except for digital literacy and cognitive sub-dimension ($F_{(2-109)}$=7.664; p<.05; $F_{(2-109)}$=6.050; p<.05; $F_{(2-109)}$=8.005; p<.05; $F_{(2-109)}$=4.277; p<.05).

It was determined that there was a significant difference between "I am partially interested" and "I am interested" in favor of "I am interested" in social studies teacher candidates' levels of digital literacy and its sub-dimensions (except for the cognitive sub-dimension), and between "I am partially interested" and "I am fully interested" in favor of "I am fully interested" in the technical sub-dimension and total digital literacy levels.

The results of the independent samples t-test used to determine whether social studies teacher candidates' levels of digital literacy and its sub-dimensions show a significant difference according to their internet usage time are shown in Table 14.

Table 14.

Levels of Social Studies Teacher Candidates' Digital Literacy and Its Sub-Dimensions According to their Internet Usage Time

	Internet usage time	*N*	*M*	*SD*	*df*	*t*	*p*
Attitude	up to 3 hours	44	3.85	.60	110	-1.830	.070
	More than 3 hours	68	4.07	.64			
Technical	up to 3 hours	44	3.53	.62	110	-1.787	.077
	More than 3 hours	68	3.76	.69			
Cognitive	up to 3 hours	44	3.64	.81	110	-.738	.462
	More than 3 hours	68	3.74	.70			
Social-emotional	up to 3 hours	44	3.51	.81	110	-3.792	.000
	More than 3 hours	68	4.04	.65			
Digital literacy	up to 3 hours	44	3.63	.56	110	-2.657	.009
	More than 3 hours	68	3.90	.51			

When Table 14 is examined, digital literacy levels of social studies teacher candidates show a significant difference according to their internet usage time ($t_{(110)}$= -2.657; p<.05). The

significant difference is in favor of social studies teacher candidates whose internet usage time is more than 3 hours.

Again, when Table 14 is examined, it is seen that the attitude, technical and cognitive levels of social studies teacher candidates' digital literacy sub-dimensions do not show a significant difference according to their internet usage time ($t_{(110)}$= -1.830; p>.05; $t_{(110)}$= -1.787; p>.05; $t_{(110)}$= -.738; p>.05; $t_{(110)}$= -.888; p>.05). In addition, it was determined that the social-emotional levels, which is a sub-dimension of digital literacy of social studies teacher candidates, showed a significant difference according to the internet usage time ($t_{(110)}$= -3.792; p<.05). It was determined that there was a significant difference in favor of those who used the internet for more than 3 hours in social-emotional sub-dimension levels.

In order to examine the relationship between social studies teacher candidates' attitudes towards information and communication technologies (ICT) and their digital literacy levels, the arithmetic means (M), standard deviations (SD) and Pearson correlation coefficients of variables were calculated and the findings are presented in Table 15.

Table 15.

The Relationship between Social Studies Teacher Candidates' Attitude Levels Towards Information and Communication Technologies (ICT) and Digital Literacy Levels

	Variables	*N*	*M*	*SD*	*1*	*2*	*p*
1	Attitude towards information and communication technologies (ICT)	112	3.51	.47	1		.000
2	Digital literacy	112	3.76	.54	.68**	1	

According to Table 15, a significant, positive and high level relationship was found between social studies teacher candidates' attitudes towards ICT and their digital literacy levels (r=.68; p<.01).

Discussion and Conclusion

It was determined that there was no significant difference in teacher candidates' attitudes towards ICT according to gender. Akgün (2020), Aydoğmuş and Karadağ (2020), Güleli (2015), Şad and Nalçacı (2015) also found that ICT competencies did not differ significantly according to gender variable. It was found that there was a significant difference in favor of female students in general ICT tendency, software usage and communication in virtual environment levels, and in favor of male students in computer hardware level. Bağcı et al. (2020) found a significant difference between ICT skills and gender variable in favor of males; İzci (2023) found a significant difference in favor of females. It was determined that there was a significant difference in teacher candidates' attitudes towards ICT and its sub-dimensions, access to information in virtual environment and software usage, according to the grade levels of their education, and the differentiation was between the grade 4 and grade 2 and in favor of the grade 4. Bağcı et al. (2020) found a significant difference between ICT and grade level only in one dimension in favor of grade 3 students and stated that there was no significant difference in other sub-dimensions and total score of the scale according to grade level of education. Aydoğmuş and Karadağ (2020) found that ICT proficiency scores increased significantly as the grade level increased, and this result supports the result in this study.

It was concluded that there was a significant difference between "I am partially interested" and "I am interested" in favor of "I am interested" in the levels of teacher candidates' attitudes towards ICT and its sub-dimensions; and between "I am partially interested" and "I am fully interested" in favor of "I am fully interested" in the levels of general ICT tendency, access to information in virtual environment, software usage sub-dimensions and total attitude levels. These results can be interpreted as an increase in the level of social studies teacher candidates' attitudes towards ICT as their level of interest in technology increases. Akgün (2020), Aydın (2016), Aydoğmuş and Karadağ (2020), Çelik (2020) and Koçak Usluel et al. (2007) also reached similar results with the current study. It was determined that teacher candidates' attitudes towards ICT did not show a significant difference according to their internet usage time. Güleli (2015) and Şad and Nalçacı (2015) concluded that ICT competencies did not differ significantly according to the frequency of internet usage. However, it was concluded that there was a significant difference in favor of those who used the internet more than 3 hours in the teacher candidates' level of access to information in the virtual environment.

It was determined that there was no significant difference in the digital literacy levels of teacher candidates according to whether they were female or male. In previous studies on the related subject, Gökbulut (2021), Kozan (2018), Pala (2019), Yılmaz (2021) found that there was no significant difference between digital literacy levels and gender variable. In addition, there is a significant difference in the digital literacy sub-dimension technical levels of prospective social studies teacher candidates according to gender. It was determined that there was a significant difference in favor of males in the technical sub-dimension levels. Keskin and Küçük (2021) and Ocak and Karakuş (2019) found a significant difference in favor of male in one sub-dimension of the scale they used, while there was no significant difference in other sub-dimensions and the total score of the scale according to gender variable. Balcı (2023), Bayrakcı (2020), Çelik (2021), Çelikkaya and Köşker (2023), Göldağ (2021), Özoğlu and Kaya (2021) and Yazıcıoğlu et al. (2020) found a significant difference between digital literacy and gender variable in favor of males. It was determined that there was a significant difference between teacher candidates' digital literacy and its sub-dimensions at the technical level according to the grade levels of their education and that the difference was between grade 4 and grade 2 and in favor of grade 4 students. Kozan (2018) and Yılmaz (2021) concluded that there was a significant difference between digital literacy and the grade level variable in favor of grade 3 students; Yazıcıoğlu et al. (2020) concluded that there was a significant difference in favor of grade 2 students. Çelik (2021) found that as the grade level of the students increased, their digital literacy levels also increased.

It was concluded that digital literacy and its sub-dimensions levels of teacher candidates showed a significant difference according to their level of interest in technology, except for the cognitive sub-dimension of digital literacy. It was determined that as teacher candidates' level of interest in technology increased their digital literacy levels increased. Bayrakcı (2020), Çelikkaya and Köşker (2023) and Göldağ (2021) also found that there was a significant difference in the digital literacy according to the level of level of interest in technology and supported the result obtained from the current study. It was determined that there was a significant difference in the digital literacy levels of teacher candidates according

to their internet usage time and that the difference was in favor of those whose internet usage time was more than 3 hours. As the daily internet usage time increases, digital literacy levels also increase significantly. Çelik (2021), Göldağ (2021) and Pala (2019) concluded that there is a significant relationship between the frequency of daily internet use and digital literacy levels and supported the current research. However, Kozan (2018) and Yılmaz (2021) determined that digital literacy levels did not differ significantly according to the daily internet usage time.

It was determined that there was a significant, positive and high level relationship between teacher candidates' attitudes towards ICT and their digital literacy levels. The finding obtained can be interpreted as that teacher candidates' attitudes towards ICT have a positive effect on their digital literacy levels. Educational Testing Service [ETS] (2002) stated that the technical competencies within the three basic competencies of ICT are the basic components of digital literacy. Pala (2019) also stated that digital literacy involves individuals learning ICT. The high level of ICT competencies of teacher candidates is important in terms of their success in fulfilling the requirements of the information age and the widespread use of ICT (Aydoğmuş & Karadağ, 2020), as well as their level of digital literacy. Since ICT facilitates learning, attracts students' attention, and increases student and teacher success, teachers and teacher candidates should be able to use ICT applications effectively (Cüre & Özdener, 2008), and for this, they should first have digital literacy skills. ICT integration in education is a dynamic process that requires constant monitoring due to the development, increase and diversification of information and communication technologies (İzci, 2023). In order to follow the developments in ICT continuously and to adapt to these developments effectively, digital literacy skills should also be developed. It is thought that this situation will contribute to the social studies teacher candidates to gain the digital literacy skill, which is among the course curriculum, more efficiently to the students they will train.

Recommendations

Based on the results obtained in the research, the following recommendations can be made:

In faculties of education, elective courses for the development of ICT and digital literacy of social studies teacher candidates can be added to the program. Thus, teacher candidates' attitudes towards ICT and their levels of digital literacy can be improved.

In order to increase social studies teacher candidates' level of interest in technology, activities can be organized to encourage the use of technology and to show the benefits and advantages of technology in professional and daily life.

In order to make the time spent on the internet productive, social studies teacher candidates can be informed about useful content, channels and web addresses on the internet. Thus, while increasing the time spent on virtual networks is encouraged, social studies teacher candidates will also be raised awareness about protecting themselves from harmful content.

The content of the courses and the materials used in the courses can be enriched in terms of ICT, and digital materials and web 2.0 tools can be used more.

By ensuring that social studies teacher candidates develop positive attitudes towards ICT, their digital literacy levels can be indirectly increased.

The research is a quantitative research. More in-depth results can be obtained by conducting mixed or qualitative studies on the same subject.

The scope of the study can be expanded by conducting research on different populations and samples.

A study can be conducted on the attitudes towards ICT and digital literacy of academicians who lead teacher candidates studying in faculties of education.

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BIOGRAPHICAL NOTES

Contribution Rate of Researchers

Author 1: 50%

Author 2: 50%

Conflict Statement

There is no conflict of interest that the authors will declare in the research.

Notice of Use of Artificial Intelligence

The authors did not utilise any artificial intelligence tools for the research, authorship and publication of this article.

Sosyal Bilgiler Öğretmen Adaylarının Bilgi ve İletişim Teknolojilerine Yönelik Tutumları ile Dijital Okuryazarlıkları Arasındaki İlişkinin İncelenmesi

http://www.ijlssse.com

Özet

Bu araştırmada sosyal bilgiler öğretmen adaylarının bilgi ve iletişim teknolojilerine yönelik tutumları ile dijital okuryazarlıkları arasındaki ilişkinin incelenmesi amaçlanmıştır. Araştırmanın evrenini 2024-2025 eğitim-öğretim yılında bir devlet üniversitesinde eğitim fakültesinde öğrenim gören öğretmen adayları oluşturmaktadır. Araştırmanın örneklemi, kolay ulaşılabilir örnekleme yöntemi ile belirlenen 1, 2, 3 ve 4. sınıflarda öğrenim gören toplam 112 sosyal bilgiler öğretmen adayından oluşmuştur. Araştırmada veriler "Bilgi ve İletişim Teknolojilerine Yönelik Tutum Ölçeği" ve "Dijital Okuryazarlık Ölçeği" kullanılarak elde edilmiştir. Verilerin analizinde cinsiyete ve internet kullanım sürelerine göre anlamlı farklılık gösterip göstermediğini belirlemek için bağımsız örneklemler t-testi, ölçek puanlarının öğrenim görülen sınıf ve teknolojiye karşı ilgi düzeyine göre anlamlı farklılık gösterip göstermediğini tespit etmek için tek yönlü ANOVA kullanılmıştır. Ölçek puanları arasında anlamlı bir ilişki olup olmadığını belirlemek için Pearson korelasyon analizi kullanılmıştır. Sosyal bilgiler öğretmen adaylarının bilgi ve iletişim teknolojilerine yönelik tutum düzeyleri ile dijital okuryazarlık düzeyleri arasında anlamlı, pozitif yönlü ve yüksek düzeyde bir ilişki olduğu tespit edilmiştir. Eğitim Fakültelerinde sosyal bilgiler öğretmen adaylarına yönelik BİT ile dijital okuryazarlıklarının gelişime yönelik seçmeli dersler programa eklenebilir. Derslerin içeriği ve ders içerisinde kullanılan materyaller BİT yönünden zenginleştirilebilir, dijital materyaller ve web 2.0 araçları daha fazla kullanılabilir.

Anahtar Kelimeler: Dijital okuryazarlık, bilgi ve iletişim teknolojileri, sosyal bilgiler.

Giriş

Günümüz dünyası hızlı teknolojik gelişmelerin ve dijitalleşmenin başat özellik gösterdiği, günlük hayatın her alanında mevcut teknolojilerle iç içe olunan bir dünyadır. Öyle ki 21. yüzyılda vatandaşlıktan eğitime, bankacılık işlemlerinden alışverişe, sosyal hayattan kişisel gelişime kadar pek çok alanda dijital platformlardan ve bilgisayar teknolojilerinden yararlanılmaktadır. Bu çağda yaşanan gelişmelere uyum sağlayabilmek için bilhassa bilgi ve iletişim teknolojilerine (BİT) ve dijital okuryazarlık, teknoloji okuryazarlığı, bilgi okuryazarlığı, internet okuryazarlığı, medya okuryazarlığı gibi çeşitli okuryazarlık becerilerine sahip olunması gerekmektedir. Mevcut araştırmada, sayılan yetkinlikler içerisinden bilgi ve iletişim teknolojileri ile dijital okuryazarlık becerilerine odaklanılmaktadır.

Öğretmenlerin ve öğretmen adaylarının BİT'e yönelik olumlu tutum geliştirmeden bilgi ve iletişim teknolojilerine uyum sağlamak konusunda bir nebze eksik kalacağı yadsınamaz bir gerçektir. Konuyla ilgili yapılan bir araştırmada; öğretmenlerin BİT'e yönelik tutumları incelenmiş ve araştırma bulgularından hareketle öğretmenlerin, BİT'in hem öğrenciler hem de öğretmenler için başarıyı artırdığını, öğrenciler için dersi daha ilgi çekici kıldığını, öğretim

sürecinin daha etkili olmasını sağladığını ifade ettiklerine ulaşılmıştır. (Cüre & Özdener, 2008). Öğretmenlerin BİT'e dair geliştirdiği bu olumlu tutum ve inançlar, bilgi ve iletişim teknolojilerinin eğitim ortamlarına entegrasyonunu pozitif yönde etkileyecektir. Teknolojinin eğitime entegre edilmesi sayesinde geleneksel sınıf ortamları zenginleştirilebilir ve daha etkileşimli hale getirilebilir. Öğrenme ortamlarında birtakım sanal uygulamalar, dijital platformlar, simülasyonlar, yapay zekâ ve sanal gerçeklik gibi çeşitli materyaller sunularak öğrenciler için daha ilgi çekici ve anlamlı öğrenmeler gerçekleştirilebilir (Ok, 2024).

BİT'te yaşanan hızlı gelişmeler, bireylerin gelişen teknolojileri etkin biçimde kullanabilmesini ve dijital yeterliliklerinin güçlendirilmesini zorunlu kılmaktadır. BİT'te yaşanan bu hızlı dönüşüm süreci, toplumun ve dolayısıyla eğitim ihtiyaçlarının da değiştiğini göstermektedir. Zira eğitimin gayesi, toplumun ihtiyaçlarının karşılanmasına yönelik bireyler yetiştirmektir. Dolayısıyla günümüz eğitim sistemi; bilim ve teknolojideki ilerlemeye adaptasyon sağlayabilecek, eleştirel düşünme ve muhakeme becerisine sahip olan, problem çözebilen, doğru bilgilere nasıl ve nereden erişeceğini bilen ve eriştiği bilgileri doğru değerlendirebilen bireyler yetiştirmeyi hedeflemektedir (Karaman & Akbaba, 2020). Sayılan tüm bu özellikler aynı zamanda dijital okuryazar bireyin özellikleridir. Bu bağlamda modern çağın bilgi ve iletişim teknolojilerine uyum sağlayabilecek bireyler yetiştirilmesi için öğrencilerin dijital okuryazarlık becerilerinin geliştirilmesi gerektiği söylenebilir.

Dijital okuryazarlık; sanal teknolojilerin sosyal, ekonomik ve kültürel anlamda etkili şekilde kullanılabilmesi, haberleşme kaynaklarının değerlendirilmesi, dijital dönüşüm sürecinin tehlikelerinin fark edilebilmesi, en genel tabirle dijital çağa adapte olunabilmesi adına gerekli olan maharetlerin tamamıdır (Bayrakcı, 2020). Dijital okuryazarlık; çevrim içi platformlarda doğru bilgi ve belgelere ulaşabilmek, ulaşılan çevrim içi bilgi ve belgeleri yerinde ve doğru kullanabilmek, bu vesileyle eğitim-öğretimin internet aracılığıyla yapılabilmesinin önünü açmak için kullanılabilir (Çakmak & Aslan, 2018). Ancak dijital okuryazarlık kavramı yalnızca bir şeyleri araştırıp bulmak ile sınırlandırılmamalıdır. Bunun ötesinde sanal mecralarda elde edilen bilgileri günlük hayatın içerisine dahil edip kullanabilme yeteneği de dijital okuryazarlığın kapsam alanına girmektedir (Karabacak & Sezgin, 2019).

Dijital yerlilerin tüm sanal teknolojilere yatkın olduğu gerçeği düşünüldüğünde, bu jenerasyona eğitim verecek olan yeni nesil öğretmenlerin ve öğretmen adaylarının da etkin birer dijital okuryazar olması kritik bir öneme sahiptir. Aksi halde çağımızın gereksinimlerini karşılayacak bireylerin yetiştirilmesi bir yana, doğduğu andan itibaren dijital yatkınlığa sahip olan yeni kuşaklara ayak uydurabilmek konusunda bile son derece zorluklar yaşanması kaçınılmaz olacaktır. Bu noktada öğretmenlere ve yeni öğretmenleri yetiştiren Eğitim Fakültelerine büyük sorumluluk düşmektedir. Özellikle Sosyal Bilgiler Dersi Öğretim Programı (Millî Eğitim Bakanlığı [MEB], 2024) içerisinde dijital okuryazarlık, bilgi okuryazarlığı ve iletişim becerilerinin doğrudan yer alması, sosyal bilgiler öğretmen adaylarını ilgili konunun merkezine çekmektedir.

Günümüz eğitim sistemleri içerisinde hem BİT'e hem de dijital okuryazarlık becerisine son derece büyük önem atfedilmektedir. Sosyal bilgiler dersi dahilinde de dijital okuryazarlık, bilgi okuryazarlığı, teknoloji okuryazarlığı ve iletişim gibi becerilerin yer alması dolayısıyla BİT'e yönelik olumlu tutumlar geliştirilmesi ve BİT'in günlük hayatta etkin kullanılabilmesi

hedeflenmektedir. Her iki kavramın da birbirleriyle ilişkilendirilerek sosyal bilgiler öğretmen adaylarının BİT'e yönelik tutumlarının ve dijital okuryazarlık düzeylerinin geliştirilebileceği varsayılmaktadır. Bu varsayımdan hareketle mevcut araştırmanın temel problemi; öğretmen adaylarının bilgi ve iletişim teknolojilerine yönelik tutum düzeyleri ile dijital okuryazarlık seviyeleri arasında anlamlı bir ilişki olup olmadığı sorusudur. Bu bağlamda aşağıdaki alt problemlere yanıt aranmıştır:

1. Sosyal bilgiler öğretmen adaylarının bilgi ve iletişim teknolojilerine yönelik tutumları ne düzeydedir?

2. Sosyal bilgiler öğretmen adaylarının bilgi ve iletişim teknolojilerine yönelik tutum düzeylerinde cinsiyet, sınıf düzeyi, teknolojiye karşı ilgi düzeyi, internet kullanım süresi değişkenlerine göre istatistiksel olarak anlamlı farklılık var mıdır?

3. Sosyal bilgiler öğretmen adaylarının dijital okuryazarlık düzeyleri nedir?

4. Sosyal bilgiler öğretmen adaylarının dijital okuryazarlık düzeylerinde cinsiyet, sınıf düzeyi, teknolojiye karşı ilgi düzeyi, internet kullanım süresi değişkenlerine göre istatistiksel olarak anlamlı farklılık var mıdır?

5. Sosyal bilgiler öğretmen adaylarının bilgi ve iletişim teknolojilerine yönelik tutum düzeyleri ile dijital okuryazarlık düzeyleri arasında anlamlı bir ilişki var mıdır?

Yöntem

Bu araştırmada sosyal bilgiler öğretmen adaylarının bilgi ve iletişim teknolojilerine yönelik tutumları ile dijital okuryazarlıkları arasında anlamlı ilişki olup olmadığını incelemek amacıyla nicel araştırma modellerinden ilişkisel tarama yöntemi tercih edilmiştir.

Evren ve Örneklem

Araştırmanın evrenini 2024-2025 eğitim-öğretim yılında bir devlet üniversitesinin eğitim fakültesinde öğrenim gören öğretmen adayları oluşturmaktadır. Araştırmanın örneklemi, kolay ulaşılabilir örneklem yöntemiyle belirlenmiştir. Örneklem grubu, yüz yüze derslere katılım sağlayan ve evreni temsil ettiği düşünülen 112 sosyal bilgiler öğretmen adayından oluşmuştur.

Veri Toplama Araçları

Araştırma verilerin toplanılmasında araştırmacılar tarafından geliştirilen "Kişisel Bilgi Formu", Günbatar (2014) tarafından geliştirilen "Bilgi ve İletişim Teknolojilerine (BİT) Yönelik Tutum Ölçeği" ve Hamutoğlu vd. (2017) tarafından uyarlanan "Dijital Okuryazarlık Ölçeği" kullanılmıştır.

Verilerin Toplanması

Araştırma için izin alındıktan sonra verilerin toplanma sürecine başlanmıştır. Veri toplam sürecinde sosyal bilgiler öğretmen adayları araştırmanın amacı hakkında bilgilendirilmiştir. Gönüllü olan öğretmen adaylarının veri toplama araçlarını yanıtlaması için gerekli süre verilmiştir.

Verilerin Analizi

Bu çalışmada elde edilen veriler SPSS 29.0 yazılımı kullanılarak analiz edilmiştir. İlk olarak ölçek puanlarının normal dağılıp dağılmadığı test edilmiştir. Bunun için varyasyon katsayısı, Skewness/Kurtosis değerleri, Shapiro-Wilk değerleri, histogram grafikleri, Normal Q-Q Plot grafikleri, Detrended Q-Q Plot grafikleri ve Box Plot grafikleri incelenmiştir. Verilerin normal dağıldığı tespit edilmiş ve buna bağlı olarak sosyal bilgiler öğretmen adaylarının BİT'e yönelik tutum düzeyleri ve dijital okuryazarlık düzeylerini belirlemek için tek örneklem t-testi, ölçek puanlarının cinsiyete ve internet kullanım sürelerine göre anlamlı farklılık gösterip göstermediğini belirlemek için bağımsız örneklemler t-testi, ölçek puanlarının öğrenim görülen sınıf ve teknolojiye karşı ilgi düzeyine göre anlamlı farklılık gösterip göstermediğini tespit için tek yönlü ANOVA kullanılmıştır. Ölçek puanları arasında anlamlı bir ilişki olup olmadığını belirlemek için Pearson korelasyon analizi kullanılmıştır.

Araştırmanın Etik İzinleri:

Bu çalışmada "Yükseköğretim Kurumları Bilimsel Araştırma ve Yayın Etiği Yönergesi" kapsamında uyulması gerektiği belirtilen tüm kurallara uyulmuştur. Yönergenin ikinci bölümü olan "Bilimsel Araştırma ve Yayın Etiğine Aykırı Eylemler" başlığı altında belirtilen eylemlerin hiçbiri gerçekleştirilmemiştir.

Etik Kurul İzin Bilgileri:

Etik değerlendirmeyi yapan kurulun adı = Kahramanmaraş Sütçü İmam Üniversitesi Sosyal ve Beşeri Bilimler Bilimsel Araştırma ve Yayın Etiği Kurulu

Etik Kurul Etik inceleme karar tarihi=03.05.2024

Etik değerlendirme belgesi konu numarası=2024/04/26

Bulgular

Araştırmanın bu bölümünde "Bilgi ve İletişim Teknolojilerine Yönelik Tutum Ölçeği" ve "Dijital Okuryazarlık Ölçeği"nden elde edilen verilerin analizi sonucunda ortaya çıkan bulgulara yer verilmiştir.

Sosyal bilgiler öğretmen adaylarının BİT'e yönelik tutum düzeylerinin cinsiyete göre anlamlı bir farklılık olmadığı sonucuna ulaşılmıştır. Bunun yanında sosyal bilgiler öğretmen adaylarının BİT'e yönelik tutum alt boyutlarından genel BİT eğilimi, bilgisayar donanımı, yazılım kullanımı ve sanal ortamda iletişim düzeylerinin cinsiyete göre anlamlı bir farklılık gösterdiği belirlenmiştir. Genel BİT eğilimi, yazılım kullanımı ve sanal ortamda iletişim düzeylerinde kız öğrenciler lehine, bilgisayar donanımı düzeyinde ise erkek öğrenciler lehine anlamlı fark olduğu tespit edilmiştir.

Sosyal bilgiler öğretmen adaylarının BİT'e yönelik tutum ve alt boyutlarına yönelik düzeylerinin tümünde teknolojiye karşı ilgi düzeyleri "kısmen ilgiliyim" ile "ilgiliyim" arasında "ilgiliyim" lehine, genel BİT eğilimi, sanal ortamda bilgiye erişim, yazılım kullanımı alt boyutları ve toplam tutum düzeylerinde "kısmen ilgiliyim" ile "tamamen ilgiliyim" arasında "tamamen ilgiliyim" lehine anlamlı fark olduğu tespit edilmiştir.

Sosyal bilgiler öğretmen adaylarının BİT'e yönelik tutum düzeylerinin internet kullanım sürelerine göre anlamlı bir farklılık göstermediği belirlenmiştir. Ancak sosyal bilgiler öğretmen adaylarının BİT'e yönelik tutum alt boyutlaından sanal ortamda bilgiye erişim düzeylerinin internet kullanım sürelerine göre anlamlı bir farklılık gösterdiği tespit edilmiştir. Sanal ortamda bilgiye erişim düzeylerinde interneti 3 saatten fazla kullananlar lehine anlamlı fark olduğu sonucuna ulaşılmıştır.

Sosyal bilgiler öğretmen adaylarının dijital okuryazarlık düzeylerinde kız ya da erkek olmalarına göre anlamlı bir farklılık olmadığı sonucuna ulaşılmıştır. Bunun yanında sosyal bilgiler öğretmen adaylarının dijital okuryazarlık alt boyutlarından teknik düzeylerinde cinsiyete göre anlamlı bir farklılık vardır. Teknik alt boyut düzeylerinde erkek öğrenciler lehine anlamlı fark olduğu tespit edilmiştir.

Sosyal bilgiler öğretmen adaylarının dijital okuryazarlık ve alt boyutlarından teknik düzeyinde öğrenim gördükleri sınıf düzeylerine göre anlamlı bir farklılık olduğu, alt boyutlarından tutum, bilişsel ve sosyal-duygusal düzeylerinin öğrenim görülen sınıf düzeylerine göre anlamlı bir farklılık göstermediği belirlenmiştir. Anlamlı farklar 4. sınıflar ile 2. sınıflar arasındadır ve bu anlamlı farklılık 4. sınıflar lehinedir.

Sosyal bilgiler öğretmen adaylarının dijital okuryazarlık ve alt boyutlarından bilişsel alt boyutu hariç olmak üzere teknolojiye karşı ilgi düzeylerine göre anlamlı bir farklılık olduğu sonucuna ulaşılmıştır. Sosyal bilgiler öğretmen adaylarının dijital okuryazarlık ve alt boyutlarına yönelik düzeylerinin (bilişsel alt boyutu hariç) teknolojiye karşı ilgi düzeylerinde "kısmen ilgiliyim" ile "ilgiliyim" arasında "ilgiliyim" lehine, teknik alt boyutu ve toplam dijital okuryazarlık düzeylerinde "kısmen ilgiliyim" ile "tamamen ilgiliyim" arasında "tamamen ilgiliyim" lehine anlamlı fark olduğu belirlenmiştir. Sosyal bilgiler öğretmen adaylarının dijital okuryazarlık düzeylerinde internet kullanım sürelerine göre anlamlı bir farklılık olduğu sonucuna ulaşılmıştır. Anlamlı fark internet kullanım süreleri 3 saatten fazla olan sosyal bilgiler öğretmen adayları lehinedir.

Sosyal bilgiler öğretmen adaylarının BİT'e yönelik tutum düzeyleri ile dijital okuryazarlık düzeyleri arasında anlamlı, pozitif ve yüksek düzeyde bir ilişki olduğu tespit edilmiştir.

Tartışma ve Sonuç

Öğretmen adaylarının BİT'e yönelik tutum düzeylerinde cinsiyete göre anlamlı bir farklılık olmadığı tespit edilmiştir. Akgün (2020), Aydoğmuş ve Karadağ (2020), Güleli (2015) ile Şad ve Nalçacı (2015) da BİT yeterliliklerinin cinsiyet değişkenine göre anlamlı derecede farklılaşmadığını saptamışlardır. Öğretmen adaylarının BİT'e yönelik tutum ve alt boyutlarından sanal ortamda bilgiye erişim ve yazılım kullanımında öğrenim gördükleri sınıf düzeylerine göre anlamlı bir farklılık olduğu, farklılaşmanın 4. sınıflar ile 2. sınıflar arasında olup 4. sınıflar lehine olduğu belirlenmiştir. Bağcı vd. (2020) BİT ile sınıf düzeyi arasında yalnızca bir boyutta 3. sınıflar lehine anlamlı bir fark bulmuş, diğer alt boyutlarda ve ölçeğin toplam puanında sınıf düzeylerine göre anlamlı bir farklılık bulunmadığını belirtmiştir.

Öğretmen adaylarının BİT'e yönelik tutum ve alt boyutlarına yönelik düzeylerinin tümünde teknolojiye karşı ilgi düzeyleri "kısmen ilgiliyim" ile "ilgiliyim" arasında "ilgiliyim"

lehine; genel BİT eğilimi, sanal ortamda bilgiye erişim, yazılım kullanımı alt boyutları ve toplam tutum düzeylerinde "kısmen ilgiliyim" ile "tamamen ilgiliyim" arasında "tamamen ilgiliyim" lehine anlamlı fark olduğu sonucuna ulaşılmıştır. Elde edilen bu sonuçlar; sosyal bilgiler öğretmen adaylarının teknolojiye yönelik ilgi düzeyleri arttıkça BİT'e yönelik tutum düzeylerinde de artış olduğu şeklinde yorumlanabilir. Akgün (2020), Aydın (2016), Aydoğmuş ve Karadağ (2020), Çelik (2020) ve Koçak Usluel vd. (2007) de mevcut çalışma ile benzer sonuçlara ulaşmıştır. Konuyla ilgili Güleli (2015) ile Şad ve Nalçacı (2015) BİT yeterliliklerinin internet kullanma sıklığı değişkenine göre anlamlı farklılaşmadığı sonucuna ulaşmıştır.

Öğretmen adaylarının dijital okuryazarlık düzeylerinde kız ya da erkek olmalarına göre anlamlı bir farklılık olmadığı belirlenmiştir. İlgili konuda yapılan geçmiş araştırmalarda Gökbulut (2021), Kozan (2018), Pala (2019), Yılmaz (2021) dijital okuryazarlık düzeyleri ile cinsiyet değişkeni arasında anlamlı bir fark olmadığını bulgulamıştır. Bunun yanında sosyal bilgiler öğretmen adaylarının dijital okuryazarlık alt boyutlaından teknik düzeylerinde cinsiyete göre anlamlı bir farklılık vardır. Teknik alt boyut düzeylerinde erkek öğrenciler lehine anlamlı fark olduğu tespit edilmiştir. Keskin ve Küçük (2021) ile Ocak ve Karakuş (2019) kullandıkları ölçeğin bir alt boyutunda erkekler lehine anlamlı bir farklılık bulurken diğer alt boyutlarda ve ölçeğin toplam puanında cinsiyet değişkenine göre anlamlı fark olmadığını ifade etmişlerdir. Öğretmen adaylarının dijital okuryazarlık ve alt boyutlarından teknik düzeyinde öğrenim gördükleri sınıf düzeylerine göre anlamlı bir farklılık olduğu ve farklılığın 4. sınıflar ile 2. sınıflar arasında olup 4. sınıflar lehine olduğu belirlenmiştir. Kozan (2018) ve Yılmaz (2021) dijital okuryazarlık ile sınıf düzeyi değişkeni arasında 3. sınıflar lehine; Yazıcıoğlu vd. (2020) 2. sınıf öğrencileri lehine anlamlı bir fark olduğu sonucuna ulaşmıştır.

Öğretmen adaylarının dijital okuryazarlık ve alt boyutlarından, bilişsel alt boyutu hariç olmak üzere, teknolojiye karşı ilgi düzeylerine göre dijital okuryazarlık seviyelerinin anlamlı bir farklılık gösterdiği sonucuna ulaşılmıştır. Öğretmen adaylarının teknolojiye karşı ilgi düzeyleri arttıkça dijital okuryazarlık seviyelerinde artış olduğu saptanmıştır. Bayrakcı (2020), Çelikkaya ve Köşker (2023) ve Göldağ (2021) da dijital okuryazarlık düzeyinde teknolojiye yönelik ilgi düzeyi açısından anlamlı bir fark olduğunu bulgulayarak mevcut araştırmadan elde edilen sonucu desteklemiştir. Öğretmen adaylarının dijital okuryazarlık düzeylerinde internet kullanım sürelerine göre anlamlı bir farklılık olduğu ve farkın internet kullanım süreleri 3 saatten fazla olanlar lehine olduğu tespit edilmiştir. Çelik (2021), Göldağ (2021) ve Pala (2019) günlük internet kullanım sıklığı ile dijital okuryazarlık düzeyleri arasında anlamlı bir ilişki bulunduğu sonucuna ulaşmış ve mevcut araştırmayı desteklemiştir.

Öğretmen adaylarının BİT'e yönelik tutum düzeyleri ile dijital okuryazarlık düzeyleri arasında anlamlı, pozitif ve yüksek düzeyde bir ilişki olduğu tespit edilmiştir. Elde edilen bulgu öğretmen adaylarının BİT'e yönelik tutumlarının dijital okuryazarlık düzeyleri üzerine olumlu etkisi olduğu şeklinde yorumlanabilir. Pala (2019) da dijital okuryazarlığın, bireylerin BİT'i öğrenmesini içerdiğini belirtmiştir. Öğretmen adaylarının BİT yeterliklerinin yüksek düzeyde olması; bilgi çağının gereklerini yerine getirebilme başarısı ile BİT kullanımının yaygınlaşması bakımından (Aydoğmuş ve Karadağ, 2020), aynı zamanda dijital okuryazarlık düzeyleri açısından önemlidir. BİT; öğrenmeyi kolaylaştırdığı, öğrencilerin ilgisini çektiği, öğrenci ve öğretmen başarısını artırdığı için öğretmenlerin ve öğretmen adaylarının BİT uygulamalarını

etkili şekilde kullanabilmesi (Cüre & Özdener, 2008), bunun için de öncelikle dijital okuryazarlık becerisine sahip olması gerekmektedir. BİT'teki gelişmelerin devamlı takip edilebilmesi ve bu gelişmelere etkin biçimde adaptasyon sağlanabilmesi açısından dijital okuryazarlık becerisinin de gelişmiş olması gerekmektedir.

Öneriler

Araştırmada elde edilen sonuçlardan hareketle şu önerilerde bulunulabilir:

Eğitim fakültelerinde sosyal bilgiler öğretmen adaylarının BİT ile dijital okuryazarlıklarının gelişime yönelik seçmeli dersler programa eklenebilir. Buna bağlı olarak öğretmen adaylarının BİT'e yönelik tutumları ile dijital okuryazarlık düzeyleri geliştirilebilir.

Sosyal bilgiler öğretmen adaylarının teknolojiye yönelik ilgi düzeylerinin artması için teknoloji kullanımını teşvik edecek, teknolojinin mesleki ve günlük hayatta sağlayacağı faydaları ve avantajları gösterecek etkinlikler düzenlenebilir.

İnternette geçirilen sürenin verimli kılınması için internet üzerindeki faydalı içerikler, kanallar ve web adresleri konusunda sosyal bilgiler öğretmen adayları bilgilendirilebilir.

Derslerin içeriği ve ders içerisinde kullanılan materyaller BİT yönünden zenginleştirilebilir, dijital materyaller ve web 2.0 araçları daha fazla kullanılabilir.

Sosyal bilgiler öğretmen adaylarının BİT'e yönelik olumlu tutum geliştirmeleri sağlanarak dijital okuryazarlık seviyeleri de dolaylı olarak arttırılabilir.

Yapılan araştırma nicel desenli bir araştırmadır. Aynı konuda karma veya nitel çalışmalar yapılarak daha derinlemesine sonuçlara ulaşılabilir.

Eğitim fakültelerinde öğrenim gören öğretmen adaylarına önderlik eden akademisyenlerin BİT'e yönelik tutumları ve dijital okuryazarlıkları üzerine bir çalışma yapılabilir.