The Relationship Between Teachers' Skills in Using Information and Communication Technologies and Their Attitudes towards Distance Education

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SUMMARY

This study aims to determine the relationship between teachers' skills to use information and communication technologies and their attitudes towards distance education. A relational survey model was used in the study with a sample consisting of 213 randomly selected teachers working in different types of school in Siirt in the 2019-2020 academic year. In the research, "Scale for Determining Teachers' Levels of Information Technology Usage" and "Scale for Attitude towards Distance Education" were used as data collection tools. Data analysis was performed using the SPSS 22.0 package program. Arithmetic mean, independent groups t-test, and ANOVA were used for data analysis. According to the findings of the study, teachers' ICT usage levels were high while their attitudes towards distance education were at a moderate level. When the teachers' ICT usage skills were analysed according to variables including gender, marital status, and type of school, no significant difference was found, but a significant difference was found according to their years of seniority. When teachers' attitudes towards distance education were analysed, no significant difference was found according to gender, marital status, and seniority variables, but a significant difference was found according to type of school. Furthermore, a moderate and positive correlation was found between teachers' ICT usage skills and their attitudes towards distance education and 10% of the change in teachers' attitudes towards distance education could be predicted by teachers' ICT usage skills.

Keywords: Information and communication technologies, information technologies, attitude, distance education

INTRODUCTION

The worldwide rapid development of information and communication technologies reveals the importance of quick access to information. Therefore, it is necessary to monitor the developments in the field of information and communication technologies and to put them into practice in a short time. The fact that it is necessary to constantly monitor the current and future developments shows us that this sector will always maintain its importance (Alaca & Yılmaz, 2016). Developments in information communication technologies taking into consideration computers, mobile phones, the internet, and websites have facilitated communication and information transfer between spaces. It can be observed that these developments increase the welfare of individuals in the fields of education, health, transportation, service, finance, etc. in today's world (Genç & Tanoğlu, 2015).

Akkoyunlu (1995) reported that building tomorrow's society with yesterday's program could prevent raising individuals in line with the needs and expectations of the society. Raising individuals with the skills to use information and communication technologies has become one of the contemporary educational requirements. Researches have also shown that teachers bring forward their own principles, ideas, and judgments about the use of information and communication technologies in the classroom, which in return affect their practices (Demiraslan & Usluel, 2005). Although teachers use information and communication technologies especially in the preparation of materials and presentation of these materials to students, they perform such operations with a few software programs. The basis of this limitation is that teachers' information and communication technology competencies are below a certain level (Akbulut et al., 2011). During this rapid progress in information and communication technologies, it is very important for teachers to adapt to this process (Sengir, 2019). For this reason, studies on teacher qualifications are carried out in the international arena in the world. One of the important organizations working on teacher competencies is the "International Society for Technology in Education (ISTE)". The ISTE, conducts studies on the use of technology in education. Considering the general competencies of teachers in terms of standards for teachers, the Advisory Board of the MEB Teacher Profession General

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Competency and CAE (Computer-aided education) Project emphasizes that teachers are required to use technology, organize the classroom environment in such a way that their students can use technology, and be a model for students in the use of technology (Cüre & Özdener, 2008).

It is noticed that the applications for information and communication technologies take place more and more in the education policies in Turkey. The steps taken within the scope of providing information technologies and internet opportunities to every school are also included in the education policies in Turkey (Bayrakçı, 2005). As is known, education is the basis of individual and societal needs. While societies aim to raise individuals with the qualifications they need, individuals try to develop themselves in accordance with the norms of the new world order to meet this demand of societies (Taşpınar & Tuncer, 2008). Teachers are supposed to have the qualifications suitable for the philosophy of lifelong education that meets the needs of the twenty-first-century world (Birkök, & Vuranok, 2010). As a result, children who were born in an era of information and communication technologies and have grown up in a digital world are called "digital natives" (Şahin, 2009). It does not seem feasible to keep technology away from education in the education of children as digital natives of this age. Particularly in the wake of the concept of distance education following the rapid development of information and communication technologies, teachers are expected to use information and communication technologies effectively while teaching and educating students.

Advances in technology are regarded as one of the most important factors in the spread of distance education. However, what is critical in distance education is not only advanced technological opportunities but also to increase the quality by using these technologies appropriately and systematically (Dargut et al., 2016). Once carried out by mail in the 18th century, distance education is applied much more effectively in different places through information and communication technologies today (İşman, 2011). In distance education, which has many different features compared to traditional education and training, students and teachers can be located in different places and various methods and tools are used for accessing information and communication (Birişçi, 2013).

Distance education is an education model in which students and teachers possess course materials and provide interaction through communication technologies in an attempt to ensure the integrity of education without time and place restrictions (Ateş & Altun, 2008). In addition, distance education can also be defined as a system in which teachers and students in different places interact with the help of various communication technologies, and teaching-learning activities are carried out mutually to provide education services to wider masses and to ensure equality of opportunity in education (Birişçi, 2013). Distance education offers educational options such as instructional texts, web-based learning systems, video recordings and materials sent to students, animations, 2/3-dimensional simulations, virtual reality applications, virtual laboratories, virtual world applications (Second Life), social media environments, online conference environments, and offline communication environments to support the quality education of students (Kışla,2016).

With its flexible structure and opportunities such as easy access to information, enriched learning environment, distance education offers alternative solutions to educational problems arising from some of the limitations of traditional education (Fidan, 2016). One of the important features of distance education is that it offers individualized education with a customizable structure for each individual. At the same time, it is an important alternative solution to prevent all kinds of unbalanced distribution, which can be used from various sources, provides unlimited repetition to the learner, eliminates deficient learning, and provides equal opportunity in education and training (Boz, 2019).

Although distance education was applied in Turkey much later than the developed European countries, the current situation is the opposite. Particularly following the establishment of Eskişehir Anadolu University Open Education Faculty, distance education has seen rapid development in Turkey. Strengthened communication infrastructure and increased amount of technological investment in Turkey are among the other factors that ensure the spread of distance education (Kırık, 2014). A plethora of studies has shown that distance education can be used in every field, at every level of education, especially in higher education and adult education. Countries have also prioritized distance education in their education policies (Kışla, 2016). In many countries of the world, distance education appears as an education system that is offered to teachers with in-service training and is a complementary element of traditional teacher education (Taşlıbeyaz et al., 2014). In this period of widespread use of different information and communication technology tools, teachers should also have the skills to use these technology tools and apply them in learning (Ülkü, 2018). In this case, the teacher is expected to apply methods that are different from traditional learning, follow technology closely, and improve him/herself (Demir, 2014). In this context, teachers' level of information and communication technology usage and attitudes towards distance education appears as an important issue worth investigating.

In the face of the concept of social isolation brought up by the Covid-19 pandemic in Turkey and around the world in 2020, schools were suspended for a while, and distance education was launched to prevent the interruption of education. This has resulted in positive and negative effects of the distance education process, which has suddenly been applied at all levels from higher education to primary education. In line with the data obtained, it is expected that distance education will be efficient. However, this begs the questions: "To what extent were teachers competent in using information and communication technologies that offer the distance education environment?" and "Did such competency affect their attitudes towards distance education? Thus, this study was designed to reveal the relationship between teachers' skills to use information and communication technologies and their attitudes towards distance education. In this context, the primary goal of the study is to determine the relationship between teachers' information and communication technology usage and their attitudes towards distance education. To achieve the relevant goal, the following questions were addressed:

1. What is the level of teachers' skill to use information and communication technologies?
2. What are the teachers' attitudes towards distance education?
3. Do teachers' skills to use information and communication technologies and attitudes towards distance education differ depending on

   a) gender
   b) type of school
   c) seniority?

4. Is there a significant relationship between teachers' skills to use information and communication technologies and attitudes towards distance education?

METHOD

The study was structured using the relational survey model, which is used in quantitative research methods. Studies aiming to collect data to determine certain characteristics of a group are referred to as survey studies (Büyüköztürk, et al. 2009). A relational survey model is aimed at determining the existence or degree of change between two or more variables (Karasar, 2016).

Population and Sample

The population of the study consists of teachers working in Siirt. According to data regarding the 2019-2020 academic year spring term, a total of 4.566 teachers work in public institutions in Siirt. Schools could not continue face-to-face education because of the global Covid-19 epidemic at the time of the research, making it impossible to choose a sample with high representativeness of the population by using quantitative sampling methods. For this reason, the teachers who were reached via e-mail and through the convenience sampling method were reached using a Google form. Thus, the sample consists of 213 teachers working in different types of school affiliated with the Ministry of National Education in Siirt province in the 2019-2020 academic year. Information on the demographic characteristics of the teachers participating in the research (gender, type of school, seniority) is given in Table 1.

Table 1. Distribution of Demographic Characteristics of the Sample Group

Options		1	2	3	4	Total
		Female	Male			
Gender	n	118	95			213
	%	55.4	44.6			100
		Primary School	Secondary School	High School		
Type of School	n	26	144	43		213
	%	12.2	67.6	20.2		100
		1-5	6-10	11-15	+15	
Seniority	n	143	48	14	8	213
	%	67.1	22.5	6.6	3.8	100

Table 1, which includes the demographic characteristics of the sample group, reveals that 118 (55.4%) of the teachers are female while 95 (44.6%) of them are male. 91 (42.7%) of them are married while 122 of them (57.3%) are single. 26 (12.2%) of them work in a primary school, 144 (67.6%) of them work in a secondary school, and 43 (20.2%) of them work in a high school. Besides, the number of teachers working in a secondary school was considerably higher than those working in primary and high schools. 143 (67.1%) of them have seniorityof 1-5

years, 48 (22.5%) have seniorityof 6-10 years, 14 (6.6%) have seniorityof 11-15 years, and 8 (3.8%) have seniorityof 15 years or more.

Data Collection Tools

The "Scale for Determining Teachers' Levels of Information Technology Usage" developed by Bayraktar (2015) and the "Scale for Attitudes towards Distance Education" developed by Kışla (2016) were used. Before the scales, a personal information form was created to determine the demographic characteristics of the participants. The Scale for Determining Teachers' Levels of Information Technology Usage is a 5-point Likert-type scale consisting of 38 items and 4 sub-scales. The sub-scales are "Technology Literacy (19 items)"," Integration of Technology into Lesson (9 items)", "Social Ethics and Legal Provisions (6 items)", and "Communication (4 items)". The Cronbach Alpha value of the scale's reliability test was calculated as 0.962. The Scale for Attitude towards Distance Education, on the other hand, is a 35-item, one-dimensional, 5-point Likert-type scale. Items 3, 6, 7, 8, 10, 12, 13, 17, 20, 21, 24, 27, 30, 31, 32, 35 of the scale are reverse coded items. The Cronbach Alpha value of the reliability test result of the Scale for Attitude towards Distance Education was calculated as 0.89. A Cronbach alpha reliability coefficient of 0.70 and above is considered sufficient for the reliability of the scale (Büyüköztürk, 2007). As the schools were suspended due to the Covid-19 pandemic, teachers were reached online. The scales used in the research were sent to the teachers working in Siirt via a Google Form.

Data Analysis

Within the scope of the research, teachers' level of information and communication technology usage and their attitudes towards distance education was analysed to observe whether it changed according to gender, seniority, and type of school variables. Descriptive statistical methods such as mean ($\overline{X}$), standard deviation (sd), and frequency (f) were used to define the variables of the study. Considering the skewness and kurtosis values of the data obtained in the study and the number of teachers included in the sample, it was determined that the data showed a normal distribution and parametric tests were applied. Based on the data obtained from the participants, the Independent Groups T-Test was used to determine whether there was a significant difference in the scores obtained from the "Scale for Determining Teachers' Levels of Information Technology Usage" and its sub-scales according to gender (female-male) variables. The ANOVA test was used to determine whether there was a significant difference in terms of seniority, and type of school variables. In addition, the Scheffe test and the Tukey test were used to reveal between which groups the difference was while the Pearson Correlation analysis was used to determine the relationship between the two variables. Finally, the multiple regression analysis was used to determine the predictive power of teachers' levels of information and communication technology usage over their attitudes towards distance education.

FINDINGS

Data on the average of the scores obtained from the Teachers Levels of Information and Communication Technology Usage are presented in the table below.

Table 2. Teachers Levels of Information and Communication Technology Usage

Variable	n	$\overline{X}$	s.d.
Technology Literacy	213	3.70	.85
Integration of Technology into the Lesson	213	4.12	.75
Social Ethics and Legal Provisions	213	4.54	.62
Communication	213	3.46	1.05
General Total	213	3.91	.69

As stated in Table 2 that teachers' levels of information and communication technology usage were high ($\bar{x}$ = 3.91 and s.d = .69). The fact that the arithmetic average was 3.91 out of 5 indicates that the teachers' level of information and communication technology usage is generally sufficient. On the other hand, teachers were found to have high levels of "Technology Literacy" ($\bar{x}$ =3.70, s.d = .85), "Integration of Technology into Lesson" ($\bar{x}$ =4.12 and sd = .75), and "Communication" ($\bar{x}$ = 3.46 and sd=1.05) while they were found to very high levels of "Social Ethics and Legal Provisions" ($\bar{x}$ = 4.54 and sd=.62). Table 3 shows data regarding the attitudes of teachers towards distance education.

Table 3. Teachers' Attitude Levels Towards Distance Education

Variable	n	$\overline{X}$	s.d.
Attitude Towards Distance Education	213	3.00	.62

Table 3 reveals that teachers' attitudes towards distance education are at a moderate level (x̄= 3.00 and s.d = .62). This finding shows that in general, teachers have neither completely positive nor completely negative attitudes towards distance education. The table below shows the findings related to the sub-scale scores of the scale for determining teachers' levels of information and communication technology usage and the distribution of total scores by gender.

Table 4. T-test Result of Teachers' Levels of ICT Usage by Gender Variable

Levels of ICT Usage	Gender	n	$\bar{X}$	s.d.	t	sd	p
Technology Literacy	Female	118	3.62	.84	-1.509	211	.133
	Male	95	3.80	.87			
Integration of Technology into the Lesson	Female	118	4.12	.73	-.003	211	.997
	Male	95	4.12	.79			
Social Ethics and Legal Provisions	Female	118	4.63	.49	2.222	211	.028*
	Male	95	4.43	.73			
Communication	Female	118	3.45	1.05	-.121	211	.904
	Male	95	3.47	1.05			
General	Female	118	3.88	.67	-.626	211	.532
	Male	95	3.94	.72			

*p<0.05, **p<0.01

According to the results of the independent t-test conducted to determine the difference between the information and communication technologies usage levels of the teachers in terms of gender group, the difference between the gender groups was not statistically significant at the 95% confidence level (t= -.626; p>0.05). As a result, the levels of female (x̄= 3.88) and male (x̄= 3.94) participants were similar and high. And the difference between gender groups was not statistically significant at the 95% confidence level in terms of "technology literacy" (t=-1.509; p>0.05), "integration of technology into the lesson" (t=-.003; p>0.05), and "communication" (t=-.121; p>0.05). The difference between the gender groups in terms of social ethics and legal provisions was statistically significant at the 95% confidence level (t=2.22; p<0.05). The level of social ethics and legal provisions of female (x̄= 4.63) was higher than the levels of male (x̄= 4.43) participants. The effect size was calculated to determine the magnitude of the significant difference obtained in the independent t-test. According to the findings, the effect size of the difference between them (d=0.30) was found to be low. The table below shows the findings regarding the distribution of teachers' attitudes towards distance education by gender.

Table 5. T-test Result of Teachers' Attitudes towards Distance Education by Gender Variable

	Gender	n	$\bar{X}$	s.d.	t	sd	p
Attitude Towards Distance Education	Female	118	3.00	.63	.021	211	.983
	Male	95	3.00	.62			

*p<0.05, **p<0.01

According to the results of the independent t-test conducted to determine the difference between teachers' attitudes towards distance education in terms of gender group, the difference between the gender groups was not statistically significant at the 95% confidence level (t=,021; p>0.05). The level of female (x̄= 3.00) and male (x̄= 3.00) participants was at the same level. The table below includes findings related to the sub-scale scores of the scale and the distribution of total scores according to the type of school variable.

Table 6. ANOVA Result on Teachers' Levels of ICT Usage by the Type of School

	Type of School	n	$\bar{X}$	s.d	Sd	F	p	Difference
Technology Literacy	Primary School	26	3.72	.80				
	Secondary School	144	3.75	.83	2	.97	.380	
	High School	43	3.54	.94				
Integration of Technology into the Lesson	Primary School	26	4.35	.58				
	Secondary School	144	4.16	.72	2	4.16	.017*	(1-3)
	High School	43	3.86	.90				
Social Ethics and Legal Provisions	Primary School	26	4.37	.69				
	Secondary School	144	4.56	.62	2	1.07	.342	

	High School	43	4.56	.54			
	Primary School	26	3.47	1.09			
Communication	Secondary School	144	3.41	1.06	2	.61	.544
	High School	43	3.61	1.00			
	Primary School	26	3.94	.65			
General	Secondary School	144	3.94	.67	2	.86	.422
	High School	43	3.78	.77			

*p<0.05, 1=Primary School, 2=Secondary School, 3=High School

A one-way ANOVA analysis was conducted to determine the difference between the levels of teachers' information and communication technology usage among type of school groups. As can be seen in Table 8, the difference was not statistically significant at the 95% confidence level (D=.866; p>0.05). However, it was observed that the differences were not statistically significant at the 95% confidence level for technology literacy (D=.973; p>0.05), social ethics and legal provisions (D=1.078; p>0.05), and communication (D=.610; p>0.05) while the difference was found to be statistically significant at the 95% confidence level for integration of technology into the lesson (D=4.162; p<0.05). The Scheffe analysis was used to determine which groups caused the significant difference. The "Scheffe" test was used because the sample difference in the groups was large. According to the Scheffe test results, there was a significant difference between primary school and high school groups. It was determined that the integration of technology into the lesson levels of the teachers working in primary school (x̄=4.35) were higher than the teachers working in high schools (x̄=3.86). The table below shows the findings regarding the distribution of teachers' attitudes towards distance education according to the type of school variable.

Table 7. ANOVA Result of Teachers' Attitudes towards Distance Education by Type of School

	Type of School	n	$\bar{X}$	s.d	Sd	F	p	Difference
	Primary School	26	2.81	.80	2	4.119	.018*	(1-2)
Attitude Towards Distance Education	Secondary School	144	3.09	.53				
	High School	43	2.84	.73				

*p<0.05, 1=Primary School, 2=Secondary School, 3=High School

A one-way ANOVA analysis was conducted to determine the difference between types of school groups in terms of teachers' attitudes towards distance education. Whether the data met the normality was examined before applying the Anova test, and as a result of the normality tests, the levels of attitude towards distance education for each type of school showed a normal distribution. According to the ANOVA test results shown in Table 7, the difference between type of school groups was found to be statistically significant at the 95% confidence level (D=4.119; p<0.05). The Scheffe analysis was used to determine which groups caused the significant difference. The "Scheffe" test was used because the sample difference in the groups was large. According to the Scheffe test results, there was a significant difference between primary and secondary school groups. The attitudes of teachers working in primary school (x̄=2.81) towards distance education were lower than those working in secondary schools (x̄=3.09). The effect size of the statistically significant difference on the variables was examined and the effect size of eta-squared ($\eta2$) was found to be 0.037. The table below includes findings related to the sub-scale scores and the distribution of total scores according to seniority.

Table 8. ANOVA Result on Teachers' Levels of ICT Usage by Seniority

	Seniority	n	$\bar{X}$	s.d	Sd	F	p	Difference
	1-5	143	3.83	.81				
Technology Literacy	6-10	48	3.49	.92	3	4.425	.005**	(1-3)
	11-15	14	3.12	.69				
	15+	8	3.81	.92				
	1-5	143	4.20	.74				
Integration of Technology into the Lesson	6-10	48	4.02	.80	3	2.601	.053	
	11-15	14	3.67	.65				
	15+	8	4.08	.71				
Social Ethics and Legal Provisions	1-5	143	4.63	.50	3	3.228	0.023*	(1-2)
	6-10	48	4.34	.85				

	Seniority	n	$\bar{X}$	s.d	Sd	F	p	Difference
	11-15	14	4.33	.58				
	15+	8	4.54	.67				
	1-5	143	3.56	1.00				
Communication	6-10	48	3.31	1.13	3	1.923	.127	
	11-15	14	2.98	1.05				
	15+	8	3.21	1.26				
	1-5	143	4.01	.64				
General	6-10	48	3.73	.79	3	4.694	.003*	(1-3)
	11-15	14	3.42	.56				
	15+	8	3.90	.71				

*p<0.05 **p<0.01, 1=1-5 Years, 2=6-10 Years, 3=11-15 Years, 4=15 Years and Over

One-way ANOVA analysis was conducted to determine the difference between seniority groups. As a result of the normality tests performed before carrying out the analysis, the levels for professional seniority showed a normal distribution. The parametric testing was applied in line with the normal distribution test data and the ANOVA test was conducted to determine whether there was a significant difference between teachers' levels of information and communication technology usage and types of school.

The difference between professional seniority groups was statistically significant at the 95% confidence level (D=4.694; p<0.05). The Scheffe analysis was conducted to observe that the significant difference was between teachers with 1-5 years of professional seniority and teachers with 11-15 years of professional seniority. Besides, the level of teachers with 1-5 years of professional seniority ($\bar{x}$=4.01) was higher than that of teachers with 11-15 years of professional seniority ($\bar{x}$=3.42). The effect size of the statistically significant difference on the variables was examined and the effect size of eta-squared ($\eta2$) was found to be 0.063. The difference in technology literacy between seniority groups was found to be statistically significant at the 95% confidence level (D=4.425; P $\leq$ 0.05). The Scheffe test results revealed that there was a significant difference between teachers with 1-5 years of professional seniority and teachers with 11-15 years of professional seniority while teachers with 1-5 years of professional seniority ($\bar{x}$=3.83) had a higher level of technology literacy than teachers with 11-15 years of professional seniority ($\bar{x}$=3.12). The effect size of the statistically significant difference on the variables was examined and the effect size of eta-squared ($\eta2$) was found to be 0.059. The difference in the social ethics and legal provisions sub-scale between seniority groups was statistically significant at the 95% confidence level (D=3.228; P < 0.05). another result was that the significant difference was between teachers with 1-5 years of professional seniority and teachers with 6-10 years of professional seniority while teachers with 1-5 years of professional seniority ($\bar{x}$=4.63) had a higher level of knowledge about social ethics and legal provisions than teachers with 6-10 years of professional seniority ($\bar{x}$=4.34). The effect size of the statistically significant difference on the variables was examined and the effect size of eta-squared ($\eta2$) was calculated as 0.044. There was no statistically significant difference between seniority groups at the 95% confidence level in terms of integration of technology into the lesson (D=2.601; p > 0.05) and communication (d=1.923; p>0.05). The table below shows the findings regarding the distribution of teachers' attitudes towards distance education according to the variable of professional seniority.

Table 9. ANOVA Result on Teachers' Attitudes towards Distance Education by Seniority of

	Seniority	n	$\bar{X}$	s.d	Sd	F	p	Difference
	1-5	143	3,06	.62	3	2.007	.114	
Attitude Towards Distance Education	6-10	48	2,81	,67				
	11-15	14	3,10	,51				
	15+	8	2,99	,36				

*p<0.05, 1=1-5 Years, 2=6-10 Years, 3=11-15 Years, 4=15 Years and Over

A one-way ANOVA analysis was conducted to determine the difference between seniority groups. As a result of the normality tests, the levels of teachers' attitudes towards distance education in terms of professional seniority showed a normal distribution. Then, the parametric testing was carried out and the ANOVA test was conducted to determine whether there was a significant difference between teachers' attitudes towards distance education and their professional seniority. According to the results of the ANOVA test shown in Table 9, the difference between the levels of attitude towards distance education and professional seniority groups was not statistically significant

at the 95% confidence level. The table below includes findings regarding the relationship between teachers' skills to use information and communication technologies and their attitudes towards distance education.

Table 10: The Relationship between Teachers' (ICT) Usage Skills and Their Attitudes towards Distance Education

Variables	ICT Usage Levels	Attitude Towards Distance Education
1- ICT Usage Level	1	.33**
2- Attitude Towards Distance Education	.33**	1

n =213, *p<.05, ** p<.01 (2-way)

Table 10 shows the results of the Pearson Correlation analysis conducted to determine whether there is a significant relationship between the scores obtained from teachers' skills to use information and communication technologies and their attitudes towards distance education. As a result of the analysis, there was a moderate, positive, and linear correlation between teachers' skills to use information and communication technologies and their attitudes towards distance education [r = ,332; p< ,01] (Köklü et al., 2007). Thus, as teachers' level of ICT usage increases, their attitudes towards distance education increase, whereas; as their level of ICT usage decreases, their attitudes towards distance education also decrease. The explained coefficient of variance (determination coefficient) was $r2 = 0.10$. Accordingly, 10% of the change in teachers' attitudes towards distance education was related to teachers' skills to use information and communication technologies. The remaining 90% can be explained by different variables. This finding shows that teachers should be equipped in terms of information and communication technologies to achieve the goals set for distance education, which is now an important and indispensable part of education in today's modern world. The table below shows findings regarding the relationship between teachers' skills to use information and communication technologies and their attitudes towards distance education.

Table 11: The Relationship between Teachers' Levels of ICT Usage and Their Attitudes towards Distance Education

Variables	1	2	3	4	5
1–Technology Literacy	1	.73**	34**	.57**	.31**
2–Integration of Technology into the Lesson		1	.48**	.53**	.30**
3–Social Ethics and Legal Provisions			1	.35**	.08**
4- Communication				1	.27**
5- Attitudes Towards Distance Education					1

n =213, *p<.05, ** p<.01

As can be seen in Table 11, a positive and moderate-level significant relationship was found between teachers' attitudes towards distance education and technology literacy (r=0.316; p<0.01). A positive and moderate-level significant relationship was found between teachers' attitudes towards distance education and integration of technology into the lesson (r=0.306; p<0.01). A positive and low-level significant relationship was found between teachers' attitudes towards distance education and communication (r=0.278; p<0.01). There was no significant relationship between social ethics and legal provisions and teachers' attitudes towards distance education (r=0.08; p>0.05). The variance coefficient (determination coefficient) between the attitude towards distance education and technology literacy was $r2 = 0.09$. In other words, 9% of the change in teachers' attitudes towards distance education was related to teachers' technology literacy. The remaining 91% can be explained by different variables. The explained coefficient of variance (determination coefficient) between the attitude towards distance education and integration of technology into the lesson was found as $r2 = 0.09$. In other words, 9% of the change in teachers' attitudes towards distance education arose from teachers' integration of information and communication technologies into the lesson. The remaining 91% can be explained by different variables. The explained coefficient of variance (determination coefficient) between the attitude towards distance education and communication was $r2 = .0.07$. In other words, 7% of the change in teachers' attitudes towards distance education stemmed from teachers' skills to use communication channels in information and communication technologies. The remaining 93% can be explained by different variables.

Considering the relationships among the sub-scales in the scale of information and communication technology usage, a positive and highly significant relationship was found between technology literacy and "integration of technology into the lesson" (r=0.733; p<0.01). A positive and moderate-level significant relationship was found between technology literacy and "social ethics and legal provisions" (r=0.347; p<0.01). A positive and moderate-level significant relationship was found between technology literacy and "communication" (r=0.579; p<0.01). A positive and moderate-level significant relationship was found between integration of technology into the lesson

and "social ethics and legal provisions" (r=0.489; p<0.01). A positive and moderate-level significant relationship was found between integration of technology into the lesson and "communication" (r=0.534; p<0.01). A positive and moderate-level significant relationship was found between social ethics and legal provisions and "communication" (r=0.357; p<0.01).

Multiple regression analysis was conducted to determine to what extent teachers' skills to use information and communication technology, which consist of technology literacy, integration of technology into the lesson, social ethics and legal provisions, and communication, predict their attitudes towards distance education. Multiple Regression is an analysis performed to reveal the relationship between a dependent (predicted) variable and a series of predictive variables associated with it (Can, 2016). In the study on the prediction of attitudes towards distance education, technology literacy, integration of technology into the lesson, social ethics and legal provisions, and communication were selected as independent variables, and attitudes towards distance education were selected as dependent variables. The "Enter" method was selected as the method of selecting variables. In the Enter Method (Standard Method), all the variables are included in the model and the predictive level of the dependent variable is tested in the model. The variables that do not contribute significantly to the model are removed and the process continues until the best regression equation is found (Can, 2016).

After performing the multiple linear regression analysis, it was found within the scope of the study that (In addition to being an equally spaced scale and a continuous variable, the correlation coefficient between the independent variables was not high, multivariate normal distribution was provided, linearity assumption was provided, there was no correlation between the error terms, that is, there was no autocorrelation) the concept of distance education attitude, which consists of technology literacy, integration of technology into the lesson, social ethics and legal provisions, and communication sub-scales, provided the conditions for multiple linear regression analysis to determine to what extent it predicted the level of ICT usage.

The analysis revealed that the correlation coefficients between technology literacy, integration of technology into the lesson, social ethics and legal provisions, communication and attitude towards distance education were not high, but were at a "moderate" level. The Pearson Correlation coefficient between technology literacy and attitude towards distance education [r= .31], the Pearson correlation coefficient between integration of technology into the lesson and attitude towards distance education [r= .30], the Pearson correlation coefficient between social ethics and legal provisions and attitude towards distance education [r= .08], and the Pearson correlation coefficient between communication and attitude towards distance education [r = .27] were at a moderate level, respectively. It was also observed that it did not prevent multiple regression because in order for the regression process to give accurate results, that is, not to limit the effect size and not to reduce the reliability of the resulting regression equation, the predictive (independent) variables (technology literacy, integration of technology into the lesson, social ethics and legal provisions, communication) should not be highly correlated with each other (Büyüköztürk, 2007). Considering the Tolerance and VIF values to test the existence of multi-correlation, the tolerance value was .41 for technology literacy, .39 for integration of technology into the lesson, .74 for social ethics and legal provisions, and .62 for communication. There was no problem as these tolerance values were not below 0.20. VIF values were 2.42 for technology literacy, 2.54 for integration of technology into the lesson, 1.34 for social ethics and legal provisions, and 1.59 for communication. Since VIF values were below 10, there was no problem. Checking whether there was a Durbin-Watson, that is, auto-correlation, the value obtained as a result of the analysis was 2.033. This model can be tested because the Durbin-Watson value does not show any error values below 1 or above 3. There is no autocorrelation. This result shows that the relevant regression model can be tested. The table below includes the results of the regression analysis showing the effect of ICT on teachers' attitudes towards distance education.

Table 12: Multiple Regression Analysis Results of the Effect of ICT on Teachers' Attitudes towards Distance Education

Sub-scales	β	Stan. Dev.	t	p	Tolerance	VIF	F	p
Fixed	2.177	0.315	6.913	0.000**				
Technology Literacy	.103	0.074	1.399	0.163	0.412	2.426		
Integration of Technology into the Lesson	.147	0.085	0.088	0.088	0.393	2.542	7.647	0.00**
Social Ethics and Legal Provisions	-.096	0.76	0.209	0.209	0.745	1.343		
Communication	.081	0.049	0.099	0.099	0.626	1.598		

**p<0.01; *p<0.05, R2=0,128, Durbin Watson= 2,033

As seen in the table above, the sub-scales of the level of ICT usage such as technology literacy, integration of technology into the lesson, social ethics and legal provisions, and communication positively and statistically significantly predict teachers' attitudes towards distance education [R = .358, r2 = .12, F = 7.647, p<.01]. The level of ICT usage explains 12% of the change in the attitude towards distance education, together with the aforementioned sub-scales. It was determined that the remaining 88% could be explained by other variables. According to the standardized regression coefficient, the relative importance of the predictor variables (technology literacy, integration of technology into the lesson, social ethics and legal provisions, communication) on the attitude towards distance education was as follows: integration of technology (β = 0.147), technology literacy (β = 0.103), communication (β = 0.081), social ethics and legal provisions (β= -.096).

The regression equation obtained as a result of the regression analysis is given below:

Attitude towards Distance Education = 2.177 + (0.103* technology literacy) + (0.147* integration of technology into the lesson)- (0.096* social ethics and legal provisions) +(0.081* communication)

DISCUSSION AND CONCLUSION

The findings have shown that teachers' levels of information and communication technology usage ($\bar{x}$ = 3.91 and s.d. = .69) are at a high level and the highest average score is in the social ethics and legal provisions ($\bar{x}$= 4.54 and s.d =.62) while the lowest average score is in the communication ($\bar{x}$=3.46 and n.s=1.05) sub-scale. This indicates that teachers are at a better level in terms of social ethics and legal provisions that should be known when using information and communication technologies and teachers' knowledge of using communication technologies is not as good as their knowledge of other sub-scales in benefiting from information and communication technologies. The common point of all studies on the application of information and communication technologies in schools is that teachers have the necessary knowledge and skills for the effective integration of information and communication technologies into the learning and teaching process (Gündüz & Odabaşı, 2004; Baki et al., 2009). For this purpose, it is necessary to provide continuous training and development for teachers in information and communication technologies skills by organizing seminars and courses in which concrete examples are presented to teachers in in-service training carried out by the Ministry of National Education (Safa & Arabacıoğlu, 2021). It is essential that the school administration has a supportive attitude and provides the teachers with the necessary resources for integration (Jung, 2005). It is also essential that all organizations responsible for teacher training, especially the Ministry of National Education and universities, cooperate to integrate information and communication technologies into the learning and teaching process so that teachers can engage in related activities (Demiraslan & Usluel, 2005, Eryılmaz, 2018).). Members of the education faculty are expected to be mentors and role models in training teachers with skills to integrate technological tools into learning environments by using such tools effectively in education (Turan et al., 2013). Teachers' professional development and academic success of their students depend on their skills to use information technologies effectively and efficiently (Ekinci et al., 2012). To ensure that teachers' professional development training is gradual and sustainable, teachers should receive training related to ICT based on their knowledge levels rather than the same training for all of them (Demiraslan & Usluel, 2005).

One may notice that teachers' attitudes towards distance education ($\bar{x}$ = 3.00 and s.d = .62) are at a moderate level, indicating that teachers' attitudes towards distance education are not at an expected level. However, the more positive the attitudes and approaches of teachers towards distance education are, the closer the goals of distance education are (Yenilmez et al., 2017). A well-designed and well-evaluated distance education program is of great importance for the success and stability of the system. This, in turn, depends on the perspective of the society, its harmony with the curriculum, the techno-pedagogical knowledge of the educators, the opportunities for interaction, the learning styles of the students, and the needs, interests, attitudes, and motivation of the educators.

Some personal variables play a role in both the level of use of information and communication technologies and the attitudes of teachers towards distance education. As regards the gender variable, there was no significant difference in general between female teachers and male teachers' levels of using information and communication technologies. It was observed that only in the sub-scale of "social ethics and legal provisions" that female teachers' ($\bar{x}$= 4.63) levels of social ethics and legal provisions were higher than those of male teachers ($\bar{x}$= 4.43). This indicates that female teachers are more aware of social ethics and legal provisions while using information and communication technology than male teachers. Sengir (2019) reported that male teachers' ICT usage levels were higher than female teachers. Çelik (2019) and Cin (2018) reported that male teachers' ICT usage levels were higher than female teachers in terms of "technology literacy", " integration of technology into the lesson" and "communication", on the other hand; there was no significant difference according to the gender variable in the "social ethical and legal provisions" sub-scale. Uyduran (2018) reported that male teachers' ICT usage levels were

higher than female teachers in terms of "technology literacy" and " integration of technology into the lesson". No significant difference was found between the attitudes of female teachers and male teachers towards distance education in terms of gender. This finding indicates that female teachers and male teachers have a similar attitude towards distance education and is in parallel with many research findings in the literature (Ağır, 2007; Ateş & Altun 2008; Ülkü 2018; Yahşi & Kırkıç 2020, Kocayiğit & Uşun, 2020)

According to the type of school variable, the integration of technology levels of the teachers working in primary school ($\overline{x}$=4.35) were higher compared to those of the teachers working in high schools ($\overline{x}$==3.86), indicating that primary school teachers integrate technology into their lessons more than teachers in other types of school. Likewise, a significant difference was found between teachers' attitudes towards distance education and the types of schools they work in. It was determined that the attitudes of teachers working in primary school ($\overline{x}$==2.81) towards distance education were lower than those working in secondary schools (x^{-}=3.09). This finding may arise from the difference in pedagogical needs of primary school students. Considering that primary school students are in Piaget's concrete operational stage, students may have difficulty fully adapting to an abstract education method such as distance education and this inefficiency may explain the negative attitude of primary school teachers.

A significant difference was found between the teachers with seniorityof 1-5 years and those with seniorityof 11-15 years. It was found that the level of information and communication technology usage of teachers with 1-5 years of professional seniority ($\overline{x}$=4.01) was higher than that of teachers with 11-15 years of professional seniority ($\overline{x}$=3.42). A significant difference was observed between the teachers with 1-5 years of professional seniority and those with 11-15 years of professional seniority in terms of technology literacy. The technology literacy of the teachers with professional seniority of 1-5 years ($\overline{x}$=3.83) was higher than the teachers with professional seniority of 11-15 years ($\overline{x}$=3.12). The effect size of the significant difference between the technology literacy of teachers with 1-5 years of seniority and teachers with 11-15 years of seniority was calculated as 0.059. As regards social ethics and legal provisions, there was a significant difference between teachers with 1-5 years of professional seniority and teachers with 6-10 years of professional seniority. It was also observed that the knowledge of social ethics and legal provisions of teachers with 1-5 years of professional seniority ($\overline{x}$=4.63) was at a higher level than teachers with 6-10 years of professional seniority ($\overline{x}$=3.34). The effect size of the significant difference between the knowledge of social ethics and legal provisions of teachers with seniorityof 1-5 years and teachers with seniorityof 6-10 years was calculated as 0.044. This indicates that teachers who are senior in the profession closely follow the developing technology and are supported with in-service training to reduce or even eliminate this difference. Cin (2018) and Uyduran (2018) concluded that the level of ICT usage of teachers with less seniority was higher than that of teachers with more seniority. Çelik (2019) found that teachers with less seniority had higher ICT usage levels and "technology literacy". As regards "integration of technology into the lesson", "social ethics and legal provisions", and "communication", there was no significant difference according to the professional seniority of the teachers.

There was no significant difference between teachers' attitudes towards distance education and professional seniority groups. One may notice that the professional seniority of teachers does not affect their attitudes towards distance education. This finding indicates parallel with many research findings in the literature (Karaca et al, 2021; Kocayiğit & Kurnaz et al, 2021; Uşun, 2020; Ülkü, 2018). Yahşi and Kırkıç (2020) reported that as the professional seniority increases, there is a decrease in attitudes towards distance education.

In this study, the relationship between teachers' skills to use information and communication technologies and their attitudes towards distance education was examined. A significant relationship was found between teachers' skills to use information and communication technologies and their attitudes towards distance education. This relationship was determined as a positive and moderate relationship. Furthermore, teachers' skills to use information and communication technologies were considered as the independent variable and their attitudes towards distance education as the dependent variable and tested according to a multiple regression model. According to the results of multiple regression analysis, it was seen that all sub-scales of teachers' skills to use information and communication technologies predicted teachers' attitudes towards distance education. These findings are important as they demonstrate the effect of increasing the capacity of using information and communication technologies on the improvement of teachers' attitudes towards distance education. The model tested by regression analysis shows that 12% of the change in teachers' attitudes towards distance education can be predicted by teachers' ability to use information and communication technologies. Based on all the research findings, the following recommendations can be made:

1- Teachers should be supported and provided training by the Ministry of National Education to upgrade the current moderate-level of attitudes towards distance education.

2- To increase physical education teachers' skills to use information and communication technologies, training sessions and activities should be organized by the Ministry of National Education. In addition to this, courses on instructional technologies and communication technologies should be included in physical education teacher training undergraduate programs, and teacher candidates should be provided with a better-equipped start to the profession.

3- Information technology and software teachers can play a helpful role in eliminating the deficiencies of both students and other colleagues. In this context, the needs of all teachers should be met by establishing information and communication technologies counselling units in each school.

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