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## **The Relationship between Teachers' Attitudes towards Educational Technologies and School Administrators' Technology Leadership Roles**

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### **Abstract**

This study examines the relationship between school administrators' technology leadership roles and elementary school teachers' attitudes towards educational technologies with an emphasis on their potential indirect impacts on education quality provided, while exploring existing state of the technology use among the school administrators and teachers. In this study, two scales have been used. Both scales have been administered to 283 teachers working at elementary schools in Çanakkale. The findings show that teachers perceive their school administrators' leadership roles quite high. In the sub-dimensions, highest level is "Support" and lowest level is "Vision". In "Human-Centralism" sub-dimension, difference has been observed according to branch, in "Vision" sub-dimension difference has been observed according to branch and seniority, and in "Support" sub-dimension difference has been observed according to gender. According to "seniority and branch" variable, there is no significant difference in teachers' attitudes towards educational technologies. However, difference has been observed according to gender. There was a correlation between primary school administrators' technology leadership roles and teachers' attitudes towards educational technologies.

**Keywords:** Technology Leadership, Teachers, Elementary Schools, Attitudes Towards Educational Technologies

### **1. Introduction**

The aim of the research is to present the relationship between school administrators' technology leadership roles with teacher's attitudes of education technologies. The study has inspired by a new ability-technology leadership- added to school administrators' leadership roles. Further more teachers attitudes toward education technologies also have significant case in both school and education system.

Nowadays education is one of the most important issue across the world. Education System worldwide is changing and developing so rapidly. Internet, distance learning and even artificial intelligence has integrating education system. Information technologies become widespread all around the world, using internet become prevalent (Aksoy, 2005) for this reason education system have to be alter and should be more compatible with these developments. Schools and educational system including more technology day by day. Electronic learning or distance learning is concrete

evidence for it. (Hayytov, 2013). Individual-based learning has emerged. Students and teachers don't have to be in the same place (Aytaç, 2003). Especially human related abilities has become more effective on education management. Similarly, Binbaşıoğlu (2005) has expressed that today's students is our future. In order to prepare them for future, school and its facilities have massive role in it. Teachers and school administrators should keep up with the advances in technology. They have more responsibilities about this issue.

Educational institutions have massive roles to produce and carry over information. Administrators fulfill their leadership roles only to know, to use and adopt technology (Akbaba-Altun, 2002). Administrators ought to have long term determination to assure resources and ensure technical support. They have to be aware of that using technology make education better. Besides that educational technologies has huge contribution to education, to use them effectively teachers should show adequate consideration. Teacher's attitudes toward technology and use educational technologies related to believe its benefits to students (Kaya, 2017).

ISTE (International Society for Technology in Education) has prepared evaluations and standards for school administrators which is called NETS-A (National Education Technology Standards for Administrators). According to these standards five bullets have declared. These are;

- Visionary leadership
- Digital age learning culture
- Excellence in professional practice
- Systemic improvement
- Digital citizenship

### ***1.1. Technology Leadership and Roles***

Across the world, technology enclose every part of the human life and has become an essential point. Especially obtaining an information and using this information via technology outstanding. Conversely this situation came up with new problems which has to be solved. Akbaba-Altun (2002) reported in their research that technology leaders should have some skills like; integrate technology to education, see the big picture and be a model to other people. Görgülü (2003) mentioned similar view that technology leaders should follow developments, be effective to use it, and support and motivate teachers.

Today, administrators have new responsibilities in the management of the school. Not only use and know how to use technology but also inspire others' school attendance. From this view school administrators adopt technology (Helvacı, 2008).

### ***1.2. Attitudes of Education Technologies***

Allport (1935) defined attitude in his social psychology handbook as to being ready to something or being alerted to something. Preferences and decisions important in part of life about attitude. Apart from how to solve a problem or behave when encounter the matter. Yağcı (2012) similarly emphasized in his study that attitude as a readiness to positive or negative situations. And also noted that etymologically it means that come into action. Erdoğan (1994) remarked in his study that attitude can be listed in three topics. These are;

- Mental Factors
- Emotional Factors
- Behavioral Factors

How all the systems or equipment are current and contemporary, the point is using this equipment is more important. Therefore, besides ultimate technology in schools, teachers and school administrators' tendency to use them effect benefit portion. Topaloğlu (2008) reported in his study

that determining the teachers' attitude towards to educational technologies make better and effective education process in schools.

## 2. Method

The general survey model was used in this research for examining the relationship between the school administrators' technology leadership roles and teachers' attitudes towards educational technologies. General survey model is aiming to explain current state completely as is. The important thing is to find out this state without any changes (Karasar, 2009).

### 2.1. Participants

Participants of the research were 283 branches and primary teachers who worked at elementary schools from Çanakkale city center during the 2018-2019 academic year (Table 1).

**Table 1: Demographic Characteristics of the Sample**

Variable		f	%
Gender	Female	178	62.9
	Male	105	37.1
Seniority	1-5	30	10.6
	6-10	33	11.7
	11-15	83	29.3
	16-20	56	19.8
	21 and over	81	28.6
Branch	Primary Teacher	154	54.4
	Branch Teacher	129	45.6

### 2.2. Data collection tools

In the research, data collection tool had three sections. First part has questions about demographic characteristics of the sample (gender, branch and seniority). Second part is technology leadership roles scale which has twenty-nine items and third part is attitudes towards educational technologies which has forty-three items. In addition to this, Cochran formula has been used to identify the exact number of teachers. According to 0.5 reliability level in this research there is need to reach 264 teachers.

Cochran Formula

$$n = \frac{Nt^2pq}{d^2(N-1) + t^2pq}$$

Units to identify sample number:

N : Total number of people in universe= 846

n : Sample number

p : Probability of occurrence = 0,5

q : Probability of not occurrence = 0,5

t : theory value =1,96

d : Sample error = 0,05

$$n = \frac{846 \times 1,96^2 \times 0,5 \times 0,5}{0,05^2 \times (846-1) + 1,96^2 \times 0,5 \times 0,5}$$

$$n = 264$$

**2.2.1. School administrators' technology leadership roles scale**

In this study, "Technology Leadership Roles Scale" was used to clarify administrators' technology leadership roles according to opinions of teachers. Scale was developed by Sincar (2009) and consists of four sub-dimensions. These are;

- Human centricity
- Vision
- Communication and collaboration
- Support

**2.2.2. School administrators' technology leadership roles scale**

In this study, "Attitude towards Educational Technologies Scale" was used to clarify teachers' attitudes towards educational technologies. Scale was developed by Pala (2006) and consists of forty-three items.

**2.2. Data analysis**

SPSS 2.0 (Statistical Package for Social Sciences) was used in the research to analyze data. Skewness and Kurtosis values were between  $\pm 1,5$  (Table 2). Therefore, data was distributed normal. Because gender and branch variables composed of 2 categories, t-test was used to determine differences. F test (One-Way ANOVA) was used to examine the differences in terms of seniority. Tukey test, one of the Post Hoc analysis techniques, was used when there is a significant difference in F test. To measure the relationship between two scales, correlation analysis was used (Tabachnick & Fidell, 2013).

**Table 2: Skewness and Kurtosis Values of Scales**

	Skewness	Kurtosis
Attitudes towards Educational Technology	-.306	.317
Technology Leadership Roles	-.555	.260

**3. Findings**

The findings were presented in this section. The findings were categorized into three sub-titles. These are;

- The Findings Regarding School Administrators' Technology Leadership Roles
- Findings Regarding Teachers' Attitudes Towards Educational Technologies
- Correlation between School Administrators' Technology Leadership Roles and Teachers' Attitudes Towards Educational Technologies

**3.1. Examining the school administrators' technology leadership roles according to demographic variables**

In this sub-section, school administrators' technology leadership roles were examined in terms of independent variables such as gender, branch, and seniority.

According to opinions of teachers, the difference in the school administrators' technology leadership roles in terms of gender was analyzed by Independent-Samples t-test, and the test result was presented in Table 3.

**Table 3: The leadership roles according to gender**

	Gender	N	Mean	Sd	df	t	p
Human Centricity	Female	180	4.01	.63	281	-.33	.74
	Male	103	4.04	.56			
Vision	Female	180	3.90	.67	281	-.57	.56
	Male	103	3.95	.71			
Communication Collaboration	Female	180	3.94	.72	281	-.19	.85
	Male	103	3.96	.63			
Support	Female	180	4.01	.64	281	-1.97	.05*
	Male	103	4.17	.61			

Only in support dimension, difference was observed between female and male teachers in favor of male teachers [ $t_{(281)} = -1.97$ ,  $p < 0.05$ ]. The difference in the school administrators' technology leadership roles in terms of branch was analyzed by Independent-Samples t-test, and the test result was presented in Table 4.

**Table 4: The Leadership Roles According to Branch**

	Branch	N	Mean	Sd	df	t	p
Human Centricity	Primary	154	4.14	.55	281	3.61	.00*
	Branch	129	3.88	.64			
Vision	Primary	154	4.04	.64	281	3.25	.00*
	Branch	129	3.77	.72			
Communication Collaboration	Primary	154	4.02	.68	281	1.77	.08
	Branch	129	3.87	.69			
Support	Primary	154	4.16	.63	281	2.53	.01*
	Branch	129	3.97	.61			

\* $p < 0.05$

Difference was observed between primary and branch teachers in favor of primary teachers in human-centricity [ $t_{(281)} = 3.61$ ,  $p < 0.05$ ], vision [ $t_{(281)} = 3.24$ ,  $p < 0.05$ ] and support dimensions [ $t_{(281)} = 2.53$ ,  $p < 0.05$ ]. The difference in the school administrators' technology leadership roles in terms of seniority was analyzed by F Test (One-Way ANOVA), and the test results were presented in Table 5.

**Table 5: The Leadership Roles According to Seniority**

Sub-Dimensions		Sum of Squares	df	Mean Square	F	p	Difference
Human Centricity	Between Groups	5.42	4	1.36	3.83	.01*	16-20 year/21 year and above
	Within Groups	98.51	278	.35			
	Total	103.94	282				
Vision	Between Groups	7.24	4	1.81	4.02	.00*	16-20 year/21 year and above
	Within Groups	125.30	278	.45			
	Total	132.54	282				
Communication Collaboration	Between Groups	3.83	4	.96	2.07	.09	1-5 year/16-20 year
	Within Groups	128.54	278	.46			
	Total	132.37	282				
Support	Between Groups	2.57	4	.64	1.64	.17	
	Within Groups	109.28	278	.39			
	Total	111.85	282				

\* $p < 0.05$

According to seniority, there were differences in Human Centricity and Vision dimensions. Tukey Test was used to find the source(s) of differences. Results showed that there was a significant difference between the teachers having 16-20-year seniority and 21 year and above seniority in Human Centricity and Vision dimensions.

### **3.2. Examining the Teachers' Attitudes towards Educational Technologies According to Demographic Variables**

In this sub-section, teachers' attitudes towards educational technologies was examined in terms of independent variables such as gender, branch, and seniority.

The difference in the teachers' attitudes towards educational technologies in terms of their gender was analyzed by Independent-Samples t-test, and the test result was presented in Table 6.

**Table 6: The Attitudes Towards Educational Technologies According to Gender**

	Gender	N	Mean	Sd	df	t	p
AET <sup>i</sup>	Female	178	4.13	.43	281	-2.17	.03*
	Male	105	4.24	.42			

i: Attitudes towards Educational Technologies

According to gender, there was a significant difference in teachers' attitudes towards educational technologies between female and male teachers. It can be said that male teachers has higher-level attitudes towards educational technology. The difference in the school administrators' technology leadership roles in terms of their branch was analyzed by Independent-Samples t-test, and the test result was presented in Table 7.

**Table 7: The Attitudes Education Technologies According to Branch**

	Branch	N	Mean	Sd	df	t	p
AET	Primary	154	4.20	.38	281	1.50	.14
	Branch	129	4.13	.48			

According to branch, there was no significant difference in the attitudes towards educational technologies. It can be concluded that branch variable does not make a difference in the attitudes of teachers towards educational technologies.

The difference in teachers' attitudes towards educational technologies in terms of their seniority was analyzed by F Test (One-Way ANOVA), and the test results were presented in Table 8.

**Table 8: The Attitudes Education Technologies According to Seniority**

Sub-Dimensions	Sum of Squares	df	Mean Square	F	p
AET	Between Groups	.93	.23	1.27	.28
	Within Groups	50.86	.18		
	Total	51.79	282		

According to seniority there was no significant difference in the attitudes towards educational technologies [ $F_{(4-278)}=1.27$ ,  $p>0,05$ ]. It can be said that seniority variable does not show a difference in the attitudes of teachers towards educational technologies.

### 3.3. Examining the Relationship between School Administrators' Technology Leadership Roles and Teachers' Attitudes towards Education Technologies

**Table 9: The Relationship Between School Administrators' Technology Leadership Roles and Teachers' Attitudes Towards Education Technologies**

Technology Leadership Roles	Attitudes of Education Technologies	
Human Centricity	Pearson Correlation	.130
	Sig. (2-tailed)	.03*
Vision	Pearson Correlation	.148
	Sig. (2-tailed)	.01*
Communication Collaboration	Pearson Correlation	.175
	Sig. (2-tailed)	.00*
Support	Pearson Correlation	.238
	Sig. (2-tailed)	.00*
Sum	Pearson Correlation	.185
	Sig. (2-tailed)	.00*

Table 9 shows the relationship between school administrators' technology leadership roles and teachers' attitudes towards educational technologies. There was a low level positive relationship in all sub-dimensions. It is possible to say that school administrators' technology leadership roles are correlated with teachers' attitudes towards educational technologies. According to the findings, when school administrators' technology leadership roles increase, teachers' attitudes towards educational technologies also increase.

#### 4. Discussion, Conclusion and Suggestions

According to teachers' opinions about school administrators' technology leadership roles in elementary school, administrators show high level technology leadership roles. In sub-dimensions, support is highest and the vision is least. Sincar (2009) found similar results in his study. School administrators give more importance to use and supply technology than to plan future technology at school. In human centralism dimension, school administrators support internet utilization and encourage teachers to use educational technology. In vision dimension, school administrators state innovations. On the other hand, technological development plans are perceived lesser by teachers. In communication and collaboration dimension, internet usage has higher score; however, teachers think that school administrators do not consider opinions of teachers and students.

In respect of gender, there is no significant difference in human centralism, vision and communication and collaboration dimensions. There is a significant difference only in support dimension. Administrators' support level is higher according to female teachers. Yet, Sincar (2009) could not find difference according to gender.

In respect of branch, primary teachers have perceived that school administrators have higher level roles in human centralism, vision and support dimensions than branch teachers.

In respect of seniority, there is no significant difference in communication and collaboration and support dimensions. On the other hand, in human centralism and vision dimensions 21 years and over teachers has thought that their administrators higher level roles than 16-20 years teachers.

In elementary school, teacher's attitudes of education technologies has observed high level. Teachers has thought that education technologies is attracting students and increase their performance Pala (2006) has found similar results in her study. In respect of branch and seniority

difference has not been observed. Only according to gender parameter, in favor of male teachers has observed difference. Ekici (2008) reported that male teachers have shown positive attitude than female teachers in his study. On the other hand, ınarer, Yurttakal, Karaman and Ünal (2015) reported that there is no significant difference between female and male teachers.

While examining the relationship between school administrators' technology leadership roles with teacher's attitudes of education technologies, there is a positive correlation in low level. Gürkan (2017) reported in his study that there is positive correlation between lifelong learning and technology leadership. Similarly, Gerek (2016) reported in his study that there is a positive correlation between technology leadership and management effectiveness. Raaman and Thanmalar (2018) has mentioned parallel results in their research. They stated that relationship between school administrators' technology leadership and teacher's improvement level has high level correlation. On the other hand Baş (2012) reported in his study that there is no correlation between technology leadership level and management effectiveness. Hughes (2005) has drawn attention to importance of the issue and has suggested that there should be preparation class in faculty of educations.

Although the findings seem encouraging, it is obvious for this broad study area that more research is necessary for definitive results from which policy changes can be proposed. Preliminary analysis, though, reveals that it is of great significance for administrators and teachers to notice the enormous contributions that technology provides to the education. The results of the preliminary analysis clearly demonstrate a need for administrators to increase their skills about technology use. One of the finding of this study is that the school administrators has shown comparatively low level in vision dimension than other dimensions which is very critical about school management. While there is an essential need for further research, as a preliminary suggestion toward possible policy change could be that the creation of number of courses to entangle this undesired state of the school management from which Ministry of National Education (MoEN) would be better off. When it is considered that this study has carried out solely in government schools, and only by quantitative method, the recommendations for both researches and the MoNE are to cull pieces from the other options currently available as encompassing the private schools and using qualitative methods in the further studies to explore more definitive results to increase the effectiveness of the existing state of the education and to enhance the efforts for improving its capabilities and activities.

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