The mediating role of communication skills in the relationship between leadership style and 21st-century skills

Seyithan Demirdag (iD)
Department of Educational Sciences, Eregli Faculty of Education, Zonguldak Bulent Ecevit University, Zonguldak, Turkey
seyithandemirdag@gmail.com

With the study reported on here I aimed to examine the mediating role of communication skills in the relationship between leadership styles and 21st-century skills. A correlational research design was employed to examine such relationships among the study variables. The study sample consisted of 542 pre-school, elementary school, middle school, and high school teachers. The participants were selected using a stratified sampling method. Three different instruments were used for data collection. To determine the normal distribution of the variables, normality tests were used after the data collection. For data analysis, Pearson's correlation was used to determine the relationship among the variables. The effect of study variables on one another were determined using multiple regression analysis. Lastly, the structural equation model was used to examine the mediating effect of communication skills in the relationship between leadership styles and 21st-century skills. The findings of the study show that there were significant relationships among the variables. The findings also indicate that communication skills had an indirect mediating effect on the relationship between leadership style and 21st-century skills.

Keywords: 21st-century skills; communication skills; leadership style; school administrators; teachers

Introduction

The changes in technology, environmental conditions, knowledge, and socio-cultural transformation have led to the changing of the leadership phenomenon and the formation of leadership roles and behaviour (Bayrak, 2001). In order for educational organisations to realise their goals, as in all organisations, employees must work in harmony. One of the most important criteria of this harmony is the quality of the communication established within the organisation. Inadequate communication within the organisation causes deterioration of interpersonal relations in the organisation, inability to achieve organisational goals, and a waste of resources and time (Goris, Pettit & Vaught, 2002). On the other hand, an organisation that has people with substantial management and leadership skills, adequate knowledge of 21st-century skills, and communication skills, may bring harmony among employees and enhance the achievement of the organisation (Hunt, Tourish & Hargie, 2000). In that sense, leadership has been one of the most important issues in the field of education since the 20th century (Erçetin, 2000). Researchers have provided many definitions of the meaning of the leadership. According to Eren (2003), leadership can be defined as the sum of the skills and knowledge to gather a group of people around specific goals and mobilise them to achieve these goals. Nyberg, Bernin and Theorell (2005) explain that leadership is a mutual process in which the leader and the followers affect one another. Yavuzyilmaz (2008) claims that leadership involves a leader who can influence the followers and direct their efforts in a desired way. Similarly, Koçel (1998) asserts that leadership is the process of influencing and directing the activities of others to achieve specific personal or group goals under certain conditions. Leaders with effective leadership skills may gather a group around a certain purpose by influencing and directing the group members (Ackoff, 1999; Bresctick, 1999; Çalık, 2003; Capra, 2002; Hoyt & Blascovich, 2003; Pasa, Kabasakal & Bodur, 2001).

When school leaders' leadership styles and communication skills are supported by 21st-century skills, they will inevitably be successful in their organisations. Therefore, it is crucial to understand that the strong association between such elements would positively influence the effectiveness of school leaders around the world rather than those located only in a particular region. As the issues creating tension between school leaders and teachers are similar around the world, having sufficient knowledge of communication skills and 21st-century skills would help these leaders to tackle the crisis within their schools (Van der Mescht & Tyala, 2008).

Literature Review

The relations among school administrators' leadership styles, communication skills, and 21st-century skills was the main focus of my research. School administrators' leadership styles play a key role in the communication skills and 21st-century skills of school staff. In this research I examined three types of leadership styles: transformational leadership, transactional leadership and laissez-faire leadership. According to Krishnan (2001), transformational leaders interact with their followers to activate the existing energy of the staff for organisational purposes. They would reveal the skills and abilities of the subordinates to increase their self-confidence to enhance the outcomes of the organisation (Tabak, 2005). Transactional leaders encourage their followers to use their skills effectively for organisational goals (Colvin, 2003). This type of leadership is also known as a productivity-enhancing leadership style (Dartey-Baah, 2015; Jensen, Andersen, Bro, Bøllingtoft, Eriksen, Holten, Jacobsen, Ladenburg, Nielsen, Salomonsen, Westergård-Nielsen & Würtz, 2019; Khan, 2017). It seems that transactional leaders guide their followers in order to reveal their roles and duties for

the organisation clearly (Bateman & Snell, 2002). Laissez-faire leadership, on the other hand, is risky as it gives employees unlimited freedom (Karip, 1998). In addition, most laissez-faire are lacking in leadership qualities and are particularly afraid to make decisions (Çelik, V 2000). Based on the assumptions inferred from the leadership styles, school administrators' leadership styles may increase or hinder their communication skills and 21st-century skills in schools.

Several different definitions of communication appear in literature. Gürgen (1997) says that communication is an effective function of the socialisation process. Budak (2005) claims that it involves knowledge, symbols, signs, and behaviour. According to Oskay (1993), communication is associated with togetherness and socialisation. It includes the movement of information through channels (Budak, 2005). So, a smooth use of communication throughout educational organisations would decrease the level of chaos, rumours, and autocratic treatment of subordinates (Tutar & Yılmaz, 2013). This may be possible when school leaders establish a strong sense of the era we live in and employ necessary 21st-century skills (Crockett, 2016; Rotherham & Willingham, 2009). These approaches suggest that there may be a relation among school administrators' leadership styles, communication skills, and 21st-century skills.

Research findings suggest that there is a meaningful relationship between the leadership style of school administrators and teachers' morale and performance (Kabadayı, 1982). In line with this finding, it seems that the leadership style may either support or prevent employees from achieving in an organisation (Bakker, Killmer, Siegrist & Schaufeli, 2000). According to the National Research Council (2012), school leaders need to employ not only effective leadership approaches, but they also need to have problem-solving, critical-thinking, communication, collaboration, and self-management skills. These skills are also known as the 21st-century skills (Kylonen, 2012; Trilling & Fadel, 2009). According to the Partnership for 21st Century Learning (2015), 21st-century skills include reasoning, analysing, drawing conclusions, interpretation of information, effective communication, and critical thinking abilities. As seen here, these skills are aligned with quality leadership and effective communication. Confirming this, Paksoy and Acar (2001) emphasise that school leaders need to have communication skills to be aware of and address the complaints, requests and suggestions of the teachers. Demir (2000) explains that administrators use leadership and communication skills to engage and collaborate with teachers. Such interaction between school leaders and teachers would create a positive school climate, mutual friendship, trust,

and a conducive working environment (Şişman, 2002).

The success of a school or an organisation depends on many elements of which an effective leadership style, communication skills and 21st-century skills are a few. We have found very few studies in which these three variables were investigated at the same time. However, the relationship between leadership styles and communication skills has been studied in a few studies. It is a well-known fact that effective school leaders who effectively use the communication channels throughout schools are good at establishing substantial grounds of interaction with their staff (Udin, Handayani, Yuniawan & Rahardja, 2019). Studies show that school leaders who can use their communication skills at a high level lead the school and its staff to be successful while ensuring the quality of the school outputs (BakhshaliPour, Sareshkeh, Moghadam, Kazemi & Touba, 2016; Solaja, Idowu & James, 2016). School administrators who lack leadership skills will be weak in creating a necessary positive environment in their schools. I also found a few studies in which the relationship of leadership style and 21st-century skills was examined. Özdemir, Çoban and Bozkurt (2020) found that there was a significant relationship between school leadership and 21st-century skills. Considering that school administrators should be effective leaders in their schools, it is inevitable for their behaviour to be aligned with the requirements of the modern era (Robbins & Judge, 2013). School administrators who are aware of the transformation required in this era will make substantial progress in reaching schools' goals (Cemaloğlu & Çoban, 2019; Güçlü, Çoban & Atasoy, 2017).

Research findings suggest that there is a relationship between leadership and communication (Yörük & Kocabaş, 2000) and that school administrators with effective communication skills increase the morale and success level of the school staff (Crockett, 2016; Rotherham & Willingham, 2009; Şişman, 2002; Tutar & Yılmaz, 2013). In addition, research also suggests that there is a relationship between communication and 21st-century skills (Akçay, 2019). Study findings show that school administrators with effective communication skills are good at engagement, collaboration, reasoning, and problem-solving (Bakker et al., 2000; Kylonen, 2012; Trilling & Fadel, 2009). Based on the literature findings, communication skills may also play a mediating role in the relationship between school administrators' leadership styles and 21st-century skills. Although there is some evidence showing the relationships among these variables, hardly any studies have been conducted, particularly in a Turkish context, showing the mediating role of communication skills in the

relationship of such variables. Therefore, I had hoped to make a contribution to the current literature on the topic.

Purpose of the Study

With this study I aimed to examine the mediating role of communication skills in the relationship between leadership style and 21st-century skills. The study was guided by the following research questions:

1) Is there a significant relationship between school administrators' leadership styles, its subdimensions and communication skills in schools?
2) Is there a significant relationship between school administrators' leadership style, its subdimensions and 21st-century skills in schools?
3) Is there a significant relationship between communication skills and 21st-century skills in schools?
4) Is there a mediating effect of communication skill in the relationship between leadership style and 21st-century skills?

Methodology

Research Design

A correlational research design was employed to determine the relation among school administrators' leadership style, communication skills, and 21st-century skills.

Population and Sample

The study sample consisted of pre-school, elementary school, middle school and high school teachers who worked in the Zonguldak province in Turkey during the 2019 to 2020 academic school year. The study sample was constructed using a stratified sampling method. This is a type of sampling which includes selecting study participants in smaller groups in order to understand the relationships between them (Liu, Wang & Agrawal, 2010). The study included 542 teachers – 330 females (60.9%) and 212 (39.1%) males. With regard to schools, 6.6% (n = 36) of the teachers were from pre-schools, 24.5% (n = 133) from elementary schools, 31.4% (n = 170) from middle schools, and 37.5% (n = 203) from high schools. The teachers' years of experience varied from 1 to 5 years (19.4%), 6 to 10 years (21.2%), 11 to 15 years (17.3%), 16 to 20 years (21.8%), and 21 years and more (20.3%).

Data Collection Tools

Leadership style scale (LEADS)

The Leadership Style Scale was developed by Akan, Yıldırım and Yalçın (2014). It includes 35 items and three subdimensions. These subdimensions are transformational leadership (20 items), transactional leadership (eight items), and laissez-faire leadership (seven items). The instrument's reliability coefficient was measured and Cronbach's alpha (α) was .95, with subdimension values of: transformational leadership .95; transactional leadership .87; and laissez-faire leadership .89. After conducting a confirmatory factor analysis (CFA) of the Leadership Style Scale, the root mean square error of approximation (RMSEA) value of the construct was .064. HE Çelik and Yılmaz (2013) indicate that $0 \le$ RMSEA $\le$ .05 values showed good harmony for a model. In addition, .05 $\le$ RMSEA $\le$ .08 values suggest acceptable harmony for a model. In this instance, the RMSEA value for the LEADS fell into the acceptable range. The factor loads of the scale showed values between .33 and .89. This range suggests that the factor loadings are also within acceptable ranges (Çelik, HE & Yılmaz, 2013; Şimşek, ÖF 2007). The scores of the scale ranged from 35 to 175.

Communication skills scale (COMS)

The 36-item Communication Skills Scale was developed by Y Şimşek (2003). The instrument's reliability coefficient was measured and Cronbach's alpha (α) was .96. After conducting a CFA of the Communication Skills Scale, the RMSEA value of the model was .071. According to research, $0 \le$ RMSEA $\le$ .05 values show good harmony whereas .05 $\le$ RMSEA $\le$ .08 values suggest an acceptable harmony (Çelik, HE & Yılmaz, 2013). Based on these assumptions, the RMSEA value for the COMS was within the acceptable rang. The factor loads of the scale fell into the acceptable range as the values were between .36 and 81 (Çelik, HE & Yılmaz, 2013; Şimşek, ÖF 2007). The scores of the scale ranged from 36 to 180.

21st-Century Skills Scale (CENTS)

The 21st-Century Skills Scale was developed by Çoban, Bozkurt and Kan (2019). It includes 95 items. The instrument's reliability coefficient was measured and Cronbach's alpha (α) was .89. In addition, CFA was conducted on the CENTS. According to HE Çelik and Yılmaz (2013), RMSEA values of $0 \le$ RMSEA $\le$ .05 suggest good harmony for a model while .05 $\le$ RMSEA $\le$ .08 values suggest acceptable harmony for a model. The RMSEA value for the CENTS was .079, indicating that the model was acceptable. The factor loads of the instrument also showed values between .38 and .88 meaning that the factor loadings were also at acceptable ranges (Çelik, HE & Yılmaz, 2013; Şimşek, ÖF 2007). The scores of the scale ranged from 95 to 475. It is important to note that this scale had 12 subdimensions and a total of 95 items. In addition, one of the subdimensions of this scale was called "communication" and it had 11 items. So, the COMS, which had 36 items, was used to determine the mediating role of communication skills in this study. The COMS scale was preferred to increase the reliability of the study.

Data Analysis

The research questions of the study were answered using regression and correlation analysis. Correlation analysis was also used to determine the direction and strength of the relation between the study variables. According to Büyüköztürk (2012), the correlation coefficient's positive and negative values indicate the direction of relationships among the study variables. The values of 1.00 to .70 are considered as a strong relationship whereas those of .69 to .29 are considered as indicating moderate relationships. In addition, values lower than .29 are considered as showing a weak relationship. Beside this analysis, the effects of the study variables on each other were determined using regression analysis. For determining the normal distribution of the variables, normality tests were used. In addition, the Structural Equation Model was used to examine the mediating effect of communication skills of school administrators. Based on the examination of the data set which included the scores of leadership style, communication skills, and 21st-century skills, it was found that the data were normally distributed.

Results

The Relationships between School Administrators' Leadership Styles, its Subdimensions and Communication Skills

The relationship among leadership style, communication skills, and 21st-century skills was determined using Pearson's correlation analysis. The findings are presented in Table 1. A positive and strong correlation was found between leadership style and communication skills ($r = .749, p < .01$).

Table 1 Correlation values for leadership style, communication skills, and 21st-century skills

Variables	21st-century skills	Communication skills	Leadership style
21st-century skills	1		
Communication skills	.741*	1	
Leadership style	.669*	.749*	1

Note. *Correlation is significant at the 0.01 level.

Table 2 shows the results of Pearson's correlation analysis for the subdimensions of leadership style, 21st-century skills and communication skills. There was a positive and strong relationship of leadership style with transformational leadership (TFORM) and transactional leadership (TSACT) whereas its correlation with laissez-faire leadership (LAISSF) was positive and moderate. On the other hand, there was a strong relationship between 21st-century skills and the subdimension of TFORM ($r = .698, p < .01$), a moderate correlation with the subdimension of TSACT ($r = .365, p < .01$), and a weak correlation with LAISSF ($r = .237, p < .01$). The correlation results also show that there was a strong relationship between communication skills and the subdimension of TFORM ($r = .784, p < .01$), a moderate correlation with the subdimension of TSACT ($r = .403, p < .01$), and a weak relationship with LAISSF ($r = .260, p < .01$).

Table 2 Correlation values for subdimensions of leadership style, communication skills, and 21st-century skills

Variables	TFORM	TSACT	LAISSF
Transformational leadership	1		
Transactional leadership	.441*	1	
Laissez-faire leadership	.267*	.632*	1
Leadership style	.923*	.730*	.558*
Communication skills	.784*	.403*	.260*
21st-century skills	.698*	.365*	.237*

Note. *$p < .01$.

The results of the simple regression analysis for leadership style prediction of communication skills are presented in Table 3. The results indicate that leadership style was a significant predictor of communication skills ($R = .749$, $R^2 = .560$, $F_{1,540} = 688.531$, $p < 0.01$). Leadership style explains 56% of the total variance of communication skills.

Table 3 Simple regression analysis findings for leadership style prediction of communication skills

Model	Dependent variable: Communication skills					
Predictive variable	B	SeB	β	t	p	r
(Constant)	.669	.136		4.902	.000	
Leadership style	.943	.036	.749	26.240	.000	0.749
$R = .749$	$R^2 = .560$					
$F(1,540) = 688.531$	$p = .000$					

Table 4 shows the multiple regression analysis findings for the subdimensions of leadership style prediction of communication skills. After analysing the bivariate and partial correlations between the subdimensions of leadership style, the results show that there was a positive and strong relationship between TFORM and communication skills (r = .784). The level of correlation decreased (r = .738) in the event of controlling the impact of the other two subdimensions. There was a positive and moderate relationship between TSACT and communication skills (r = .403). Also, the level of correlation decreased (r = .066) in the event of controlling the impact of the other two subdimensions. There was a weak relationship between LAISSF and communication skills (r = .260). Communication skills were strongly predicted by TFORM; moderately predicted by TSACT, and weakly predicted by LAISSF (R = .786, R^2 = .616, $p < 0.01$). Considering the standardised coefficient (β), the relative importance of predictive variables was: TFORM (β = .752), TSACT (β = .056), and LAISSF (β = .023). In addition, TFORM was a significant predictor of communication skills.

Table 4 Findings of multiple regression analysis for level of prediction of subdimensions of leadership style for communication skills

Model	Dependent variable: Communication skills						
Predictive variable	B	SeB	β	t	p	Bivariate r	Partial r
(Constant)	1.050	.142		7.382	.000		
Transformational leadership	.724	.029	.752	25.350	.000	.784	.738
Transactional leadership	.056	.037	.056	1.530	.127	.403	.066
Laissez-faire leadership	.033	.049	.023	.679	.497	.260	.029
R = .786	R^2 = .616						
$F(3,538)$ = 290.540	p = .000						

The Relationships between School Administrators' Leadership Style, its Subdimensions and 21st-Century Skills

The findings of the study indicate that there was a positive and moderate relationship (Table 1) between leadership style and 21st-century skills (r = .669, $p < .01$). The results of the simple regression analysis about leadership style prediction of 21st-century skills are presented in Table 5. The findings show that leadership style was a significant predictor of 21st-century skills (R = .669, R^2 = .447, $F_{1,540}$ = 437.919; $p < 0.01$). Leadership style explained the 44.7% of the total variance in 21st-century skills.

Table 5 Simple regression analysis findings for leadership style's prediction of 21st-century skills

Model	Dependent variable: 21st-century skills					
Predictive variable	B	SeB	β	t	p	r
(Constant)	.647	.150		4.304	.000	
Leadership style	.829	.040	.669	20.927	.000	.669
R = .669	R^2 = .447					
$F(1,540)$ = 437.919	p = .000					

Table 6 shows that the findings of the subdimensions of leadership style's prediction of 21st-century skills were obtained from the multiple regression analysis. After analysing the bivariate and partial correlations between the subdimensions of leadership style, the findings indicate that there was a positive and moderate relationship between TFORM and 21st-century skills (r = .698). The level of correlation decreased (r = .643) in the event of controlling the impact of the other two subdimensions. There was a positive and moderate relationship between TSACT and 21st-century skills (r = .365). The level of correlation decreased (r = .056) in the event of controlling the impact of the other two subdimensions. There was a weak relationship between LAISSF and 21st-century skills (r = .237). Also, the level of correlation decreased (r = .026) in the event of controlling the impact of the other two subdimensions. TFORM and TSACT moderately predicted 21st-century skills whereas LAISSF weakly predicted 21st-century skills (R = .701, R^2 = .488, $p < 0.01$). Considering the standardised coefficient (β), the relative importance of predictive variables was: TFORM (β = .667), TSACT (β = .056), and LAISSF (β = .024). In addition, TFORM was a significant predictor of 21st-century skills.

Table 6 Findings of multiple regression analysis for level of prediction of subdimensions of leadership style for 21st-century skills

Model	Dependent variable: 21st-century skills						
Predictive variable	B	SeB	β	*t*	*p*	Bivariate r	Partial r
(Constant)	.971	.161		6.014	.000		
Transformational leadership	.631	.032	.667	19.449	.000	.698	.643
Transactional leadership	.055	.042	.056	1.307	.192	.365	.056
Laissez-faire leadership	.034	.056	.024	.600	.549	.237	.026
$R = .701$	$R^2 = .488$						
$F(3,538) = 172.967$	$p = .000$						

The Relationship between Communication Skills and 21st-Century Skills

The findings show that there was a positive and strong relationship (Table 1) between communication skills and 21st-century skills ($r = .741$, $p < .01$). Table 7 shows the findings obtained from the simple regression analysis regarding communication skills' prediction of 21st-century skills. The findings indicate that communication skill was a significant predictor of 21st-century skills ($R = .741$, $R^2 = .548$, $F_{1,540} = 657.611$; $p < 0.01$), which explained 54.8% of the total variance in 21st-century skills.

Mediating Effect of Communication Skills

The findings show that there was a strong relationship between leadership style and communication skills. The relationship between leadership style and 21st-century skills was positive and moderate. There was a positive and strong relationship between communication skills and 21st-century skills as well (Table 1).
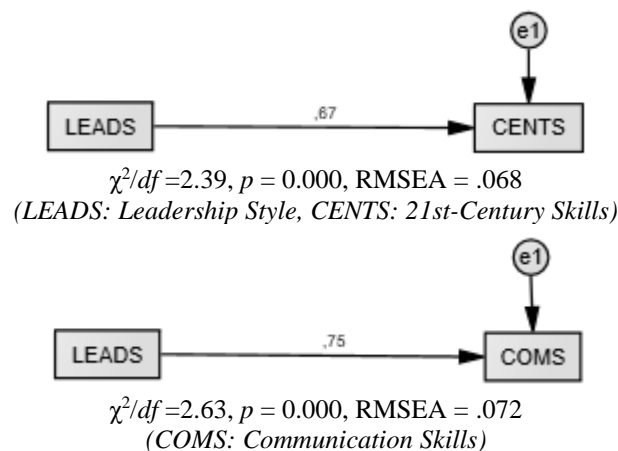
Table 7 Simple regression analysis findings for communication skills' prediction of 21st-century skills

Model	Dependent variable: 21st-century skills					
Predictive variable	B	SeB	β	*t*	*p*	r
(Constant)	.690	.121		5.685	.000	
Communication skills	.729	.028	.741	25.644	.000	.741
$R = .741$	$R^2 = .548$					
$F(1,540) = 657.611$	$p = .000$					

In determining the mediating effect of communication skills between leadership style and 21st-century skills, a model was tested using the path analysis. First of all, as an independent variable, the effect of leadership style on 21st-century skills and then its effect on communication skills was tested (see Figure 1).

The results indicate that the relationship of leadership style with 21st-century skills and communication skills was statistically meaningful. Based on these assumptions, the *t*-test value for the relationship between leadership style and 21st-century skills was 20.927. Such values for the relationship between leadership style and communication skills were 26.240. In Figure 1, R^2 values are presented ($R^2 = 0.44$ for the first model and $R^2 = 0.56$ for the second model). These findings suggest that as the first and second conditions for the mediation tests are met, school administrator's leadership style significantly predict their 21st-century skills and communication skills.

$\chi^2/df = 2.39$, $p = 0.000$, RMSEA = .068
(LEADS: Leadership Style, CENTS: 21st-Century Skills)

$\chi^2/df = 2.63$, $p = 0.000$, RMSEA = .072
(COMS: Communication Skills)

Figure 1 First stage of the mediation test related to the first model

All of the study variables were tested in the just-identified model for the second stage of the mediation test (Şimşek, ÖF 2007). The standardised values of the tested model are presented in Figure 2. When the findings of the second stage were compared to the ones of the first stage, it was observed that the value for the relationship between leadership style and 21st-century skills decreased from .67 ($t = 20.927$) to .26 ($t = 6.175$). In the second stage, 57.7% of the variances of 21st-century skills were explained by leadership style and communication skills.

$\chi^2/df = 2.79$, $p = .000$, RMSEA $= .061$
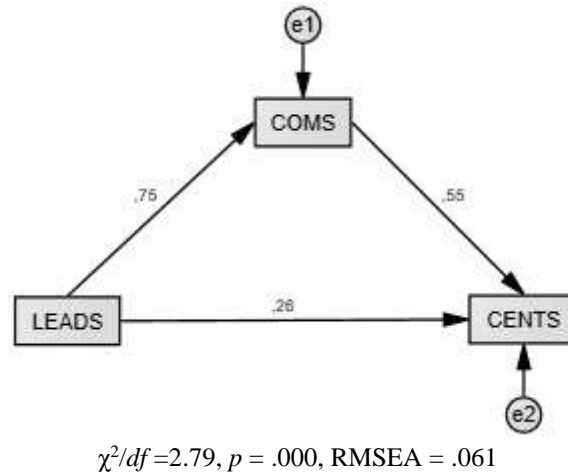
Figure 2 Second stage of the mediation test related to the first model

The findings of the fit indices of the second stage (Figure 2) are presented in the following order: RMSEA (The Root Mean Square Error of Approximation) = 0.061, SRMR (The Standardised Root Mean Square Residual) = 0.047, NFI (The Normed Fit Index) = 0.91, NNFI (The Non-Normed Fit Index) = 0.90, GFI (The Goodness of Fit) = 0.91, and The Adjusted Goodness of Fit (AGFI) = 0.94. The χ^2/df was 2.79. These findings indicate that the values of all of the fit indices were in the acceptable ranges indicating a good harmony for the model (Çelik, HE & Yılmaz, 2013). Based on the model, it may be concluded that the effect of leadership style on 21st-century skills was indirect and was provided by communication skills.

Discussion
Effective leadership styles are important in creating a successful school setting (Pasa et al., 2001). School administrators with such leadership styles encourage their followers to engage, collaborate, and make meaningful contributions to the school's success (Çalık, 2003). In this study, the findings show that there was a positive and strong relationship between leadership style and communication skills, and that leadership style was a significant predictor of communication skills. Only a few studies have been done on the relationship between school administrators' leadership style and communication skills. In their study, Hunt et al. (2000) found that people with influential leadership style are good at establishing harmony that motivates employees to perform better for the achievement of the organisation. In previous studies it was also found that there was a significant relationship between leadership style and communication skills (Crockett, 2016; Erçetin, 2000; Goris et al., 2002; Rotherham & Willingham, 2009; Tutar & Yılmaz, 2013). These findings suggest that school principals with strong leadership styles seem to understand the importance of communication with the school staff. Hence, by developing their leadership skills, school leaders would positively impact the productivity, performance, and climate in their educational milieu.

In this current study I found a significant relationship between the subdimensions of leadership style and communication skills. A positive and strong relationship of communication skills was found with TFORM and TSACT. There was also a moderate relationship between communication skills and LAISSF. Based on these results, it may be concluded that school administrators in Turkey employ more features of TFORM and TSACT than of LAISSF. It may be said that they generally tend to be the main decision-makers and control almost everything in their schools. As Turkish school leaders are inclined to micromanage teachers, the level of communication between the two groups was weaker than expected. The findings also indicate that TFORM was the only significant predictor of communication skills. The subdimensions of leadership style were found to have a positive relationship with communication skills (Bateman & Snell, 2002; Burns, 1978; Çelik, V 2000). According to Krishnan (2001), school leaders use the means of communication to activate the energy of school staff to achieve the educational goals.

Parallel to these findings, Men (2014) found that school leaders preferred using face-to-face channels to communicate in order to create satisfaction among school personnel. In addition, in their research, Colvin (2003) and Tabak (2005) found that school leaders tended to use communication channels to disseminate information, motivate teachers, and address the educational issues prevalent in their schools. The findings mentioned above suggest that school leaders with effective communication skills would eventually create a satisfactory working environment, collaboration, and trust among teachers and school administrators (Demir, 2000; Şişman, 2002; Udin et al., 2019).

The findings of my study show that there was a positive relationship between school administrators' leadership styles and 21st-century skills. The findings also indicate that leadership style was a predictor of 21st-century skills. Currently, students, teachers, and parents have many expectations of how school leaders should run their schools during the current challenging times. According to the National Research Council (2012), school leaders need to employ leadership styles which help students and teachers to develop and apply 21st-century skills, which include self-management, critical thinking, team work, and problem-solving. In a similar vein, Kylonen (2012) indicates that it was important for school leaders to have the necessary skills to create a positive working environment. Based on these findings, one could confirm that schools with effective leaders would eventually succeed in encouraging the staff for the success of the school (Ferrandino, 2001; Paksoy & Acar, 2001; Partnership for 21st Century Learning, 2015; Trilling & Fadel, 2009). Conversely, Özdemir et al. (2020) suggest that leaders who lack leadership skills can only contribute to the failure of schools.

In this study I found a significant relationship between the subdimensions of leadership style and 21st-century skills. The relationship between 21st-century skills with TFORM was strong, and its relationship with TSACT was moderate. However, the relationship between 21st-century skills and LAISSF was weak. In addition, among all subdimensions, TFORM was the only significant predictor of 21st-century skills. School leaders need to understand that their roles have evolved dramatically over the decades. This means that they have to obtain the key skills of this era to be able to activate the energy of the teachers, re-define the mission and vision of the school, initiate beneficial conversations with staff, include all of the school agents in the decision-making process, and attain academic goals (Caldwell & Spinks, 1992; Murphy, 1990; Murphy & Louis, 1994). Boamah, Laschinger, Wong and Clarke (2018) claim that administrators using TFORM skills are successful

in creating safe, resourceful, and welcoming working places so that the employees of such places are motivated to achieve more for their organisations. Supporting these findings, BakhshaliPour et al. (2016) and Solaja et al. (2016) found that school leaders with effective communication skills were good at encouraging the staff about the quality of the school outputs. As a result, one may say that schools may be successful when they have administrators who are aware of schools' needs in the 21st century.

Notably, there was a positive and strong correlation between communication skills and 21st-century skills; communication skills also significantly predicted school administrators' 21st-century skills. This result suggests that school leaders with efficient communication skills will also obtain the necessary 21st-century skills. School administrators with 21st-century skills understand the importance of communication to attain the school's goals (Pacific Policy Research Center, 2010). An effective use of communication throughout the school would help all involved in the school to engage, collaborate, and exhibit organisational affection (Bozkurt & Aslanargun, 2015). In their study, Lemke and Martine (2003) found that school leaders who had obtained 21st-century skills tended to create a welcoming work place in which engagement, communication, and positive outcomes are enhanced. Similarly, Cemaloğlu and Çoban (2019) and Güçlü et al. (2017) claim that school leaders who understand what changes and transformations are necessary in this century will make substantial progress in reaching the schools' goals. From these assumptions, it may be stressed that school leaders should be informed of the contemporary skills required to overcome problems and to create a positive atmosphere among all school agents.

In this study it was statistically revealed that communication skill was a mediating variable between 21st-century skills and leadership style. Based on the literature findings, there is a relationship between leadership styles, communication skills and 21st-century skills. However, no studies have indicated that communication skill was a mediating variable in the relationship between school administrators' leadership style and their 21st-century skills. It may be inferred from this finding that communication skills is an important factor which has associations with leadership style (Yörük & Kocabaş, 2000) and 21st-century skills (Akçay, 2019). Parallel to these findings, school administrators with effective communication skills are effective in increasing the level of morale, motivation, and engagement among school staff (Rotherham & Willingham, 2009; Şişman, 2002). In addition, school leaders who employ necessary communication skills are aware of the crucial factors existing in this era. So,

the leaders would know how to treat such factors to increase the school's achievement (Kylonen, 2012).

Conclusion

The type of leadership that school administrators exhibit may directly or indirectly affect the processes and factors regarding the school. Communication skills and 21st-century skills are only two of these factors. If school administrators are aware of the critical elements in schools, which include engagement, collaboration, self-confidence, and motivation of school staff, it may be claimed that they possess communication and 21st-century skills. Theoretically, effective ways of communication and substantial 21st-century skills might expedite the flow of work for school administrators so that they may help school agents reach targeted goals sooner. By applying communication tools effectively throughout the school, the administrators would have opportunity to engage in conversations with teachers and be able to reveal the skills and abilities which have to be used for the success of the school. School leaders obtaining these skills would enhance the level of academic achievement of the school and provide a positive school climate among all school staff, including students' parents. With these assumptions in mind, it may be inferred that school administrators need to be prepared to develop their skills and overcome challenges facing schools in this century. Firstly, they need to employ modern leadership approaches rather than traditional ones. Secondly, they need to update their level of knowledge to keep up with changes in the educational milieu. Thirdly, they would have to be innovative and flexible while communicating with others during conflict situations. Lastly, school leaders should always stay abreast of communication skills to be more approachable leaders.

Limitations and Suggestions for Future Research

This study included some limitations. Firstly, the study included teachers from one particular province only. Secondly, the participants may have been selected from different regions and countries rather than from only one region and country. Thirdly, instead of using only quantitative research methods, qualitative or mixed research designs may have been used to obtain more in-depth information. Lastly, more teachers may have been added as participants to increase the generalisability of the study. The study findings indicate that there was a significant relationship among school administrators' leadership style, communication skills, and 21st-century skills.

In future research it may also be interesting to examine the relationships of these variables with personal traits of school principals. These traits could include but should not be limited to social intelligence, self-control, optimism, and curiosity. By determining associations between such variables, school administrators would know what to improve in terms of personal characteristics to become effective school leaders in the 21st century.

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