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The Relationship Between School Administrators' Creative Leadership Qualities and School's Organizational Intelligence Levels*

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ABSTRACT

This study aims to investigate the relationships between the creative leadership qualities of school administrators and the organizational intelligence of schools. This is a correlational study, one of the methods of quantitative research. Teachers from the Van districts of pekyolu, Tuşba, and Edremit are included in the study. The sample for this study consists of 451 teachers randomly selected from schools in these districts. The research data was collected using the Multidimensional Organizational Intelligence Scale and The Creative Leadership Qualities of School Administrators' Scale. Using the arithmetic mean, standard deviation, correlation average, and regression analysis, the data were analyzed. The study found a significant and positive correlation between the creative leadership qualities of school administrators and the organizational intelligence of schools. School administrators' creative leadership qualities and sub-dimensions are significant predictors of their institutions' organizational intelligence.

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Keywords:

School administrators, creative leadership, organizational intelligence.

1. Introduction

Rapid developments in technology and information fields transform the change in the society formed by individuals into a dynamic process (Marşap, 2009). In this process, the necessity of managing educational organizations based on knowledge dynamics emerges. Developments in technology and information with the management requirements of educational organizations lead to developments and changes in their organizational structures, management understandings, and leadership styles (Demir-Uslu, 2011). The importance of leadership in education is increasing daily, as education is considered an organization that should give the right answers to the changing social needs and meet the expectations with its outputs (Badejo, 2016; Ruiz-Mills, 2019). In education, leaders are seen as the conductors of an orchestra. The conductor's skills, such as being able to lead his orchestra for a common purpose with the same harmony and enthusiasm and creating a common vision, also reflect the styles of education leaders (Ruiz-Mills, 2019). Creative leaders are those who can manage their organizations by utilizing their skills in problem situations and complexities. In the field of education, leaders who can use creativity as a compass while navigating uncharted territory are regarded as crucial (Yanık, 2007).

1.1.Creative Leadership

There are numerous definitions of creativity, including discovery and innovation (Yanık, 2007), which takes on different meanings depending on its form (Harris, 2009), the set of responses created for the situations

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encountered (Rouquette, 2007), the development and communication of new ideas that are expected to be useful (Mentor, 2011), and the preparation of the new by arranging the old (Bentley, 1999). Creative leadership, on the other hand, is defined as a leadership approach that can be used for innovation and change, where imagination is used, an effective communication network is created, risks are effectively managed, and problem solving is carried out effectively (Agbor, 2008; Alder, 2004; Badejo, 2016; Ball, 2018). Creative leadership requires the ability to communicate with different people, to effectively fill the gaps where time, resources, opportunities, and shared learning takes place, and to find innovative solutions by combining different perspectives and ways of thinking with their self-awareness. In this context, it is stated that the creative leader should have entrepreneurial and effective communication skills, be open to innovation and change, and have the characteristics of a structure that will break the mold by making a difference and move away from the determined forms (Uçar & Sağlam, 2019).

Leaders with a creative leadership understanding have developed and renewed themselves by gaining many new leadership characteristics (Marşap, 2009; Yanık, 2007). Creative leaders are expected to respect developments and changes, tolerate differences, are innovative, have high imagination and advanced communication skills, can quickly understand the problems they face, produce solutions, and can manage risk (Harris, 2009; Stoll & Temperley, 2009). The new era, in which problem-solving skills were seen as the key point, brought with it the necessity of features such as perception, comprehension, and synthesis, and this revealed the understanding that the leaders of the new era should have certain expertise (Demir Uslu, 2011; Rouquette, 2007). Leaders who are experts in their fields and can use their intelligence effectively in problem-solving have come out of the old leadership understanding and have entered a tendency based on creativity in their management understanding (Harris, 2009). Therefore, intelligence can be expressed as an element of management skills. Leaders who can blend their individual intelligence with organizational understanding can effectively manage their organizations in line with their visions (Helal, 2006). However, it can be said that the intelligence of the organization works differently from the total intelligence of individuals. Organizational intelligence, which is accepted as the whole and use of the abilities that ensure the survival of the organization (Neyişçi, Potas, & Erçetin, 2018), is expressed as to use all of the skills and potential to make decisions about unexpected situations in the environment (Erçetin, 2004a), structure, culture, environmental relations, knowledge, and strategic processes, etc. problem-solving capacity created by its subsystems (Kull, 1997), ability to act target-oriented, creating and accessing an organizational knowledge base, selecting and managing appropriate actions, monitoring the results of actions (Erçetin, 2004b), using an organization's data and management processes scanning using the perception of information and the ability to combine knowledge with strategic options (Kull, 1997).

1.2. Organizational Intelligence

Organizations have entered an increasingly complex process to keep up with the changes they face. They use organizational intelligence management to survive in this complexity and demonstrate the necessary skills (Jung, 2009). The ability to act in harmony with the environment, to satisfy changing needs and to provide new services is considered a requirement of today (Resto-Gallardo, 2009). Organizational intelligence is seen as an important structure that combines the skills of adapting to the environment, changing the environment and itself, and solving the problems encountered in maintaining an organization (Erçetin & Demirbulak, 2002; Halal, 2006; Resto-Gallardo, 2009; Stalinski, 2004). Individuals who can solve the problems they encounter are aware of the changes in their environment and ask questions against these situations. At this point, making organizational intelligence work in the field of education gains importance and is expected to significantly contribute to education (Resto-Gallardo, 2009).

Organizations where organizational intelligence works differ from others in acquiring and using information. Because individuals who ask questions, research, have a sense of curiosity, and develop synthesis skills are trained in organizations where organizational intelligence is used effectively (Tekin, 2008). These individuals are needed for schools to adapt to contemporary conditions. For this reason, it is thought that using organizational intelligence skills in schools is important (Ekici & Titrek, 2011; Yörük, 2006).

As an educational institution, the need for leadership that can activate the organizational intelligence of schools, approach changing conditions with an innovative perspective and have problem-solving skills emerges. Leaders who advance in familiar ways and act on past experiences are no longer sufficient to meet

the needs of the age. In this context, organizational intelligence also leads to the emergence of new leadership understandings. Increasing the performance of the organization depends on the good management of its material and moral resources and the leaders who can use the intelligence of individuals at the level of organizational intelligence (Jung, 2009; Keleş & Özkan, 2010).

1.3. Creative Leadership and Organizational Intelligence

Using organizational intelligence in leadership positively contributes to environmental adaptation and development and effectively uses information for goals (Stalinski, 2004). With the changing and developing technology in the 21st century, organizational intelligence functions in the ability of leaders to solve the problems they face to maintain their existence and creates opportunities for success (Halal, 2006). Leaders who can be creative and provide flexibility can be different and differentiate themselves from other leaders positively (Jung, 2009). As an organization, the use of organizational intelligence and leaders who can provide these conditions of use, increase productivity in line with the common goal, renew themselves and create the physical and environmental conditions that can adapt to change is considered especially important in schools. In this context, it is thought that there may be a relationship between the creative leadership characteristics of school principals and the organizational intelligence levels of schools.

When the literature is examined, studies are seen about *creative leadership* (Dikmen Ada, 2012; Agbor, 2008; Alder, 2004; Aslan, 1994; Austin, 1997; Badejo, 2016; Ball, 2018; Botha, 2013; Casavant & Cherkowski, 2001; Chernin 2003; Gardner, 1993; Huard, 2008; Jarvis, 2015; Kabba, 2013; Li & Yue, 2019; Macbean, 2014; Mainemelis et al., 2015; Marşap, 2009; Mumford et al., 2002; Palus & Horth, 2005; Öztürk, 2014; Rouquette, 2007; Sisk, 2001; Stoll & Temperley, 2009) and *organizational intelligence* (Bümen, 2002; Düzer, 2008; Ekici, 2007; Erçetin, 2004; Glynn, 1996; Gökteş, 2017; Halal, 2006; Jung, 2009; Laine, 2000; Mikesell, 2001; Simich, 2005; Stalinski, 2004; Woodman et al., 1993; Yıldırım, 2006; Yörük, 2006). However, there is no research examining the relationship between school principals' creative leadership characteristics and the schools' organizational intelligence levels. This study aims to examine the relationship between the creative leadership characteristics of school principals and the organizational intelligence levels of schools and thought to fill this gap in the literature. In line with this main purpose, answers to the following questions were sought.

- What is the level of creative leadership characteristics of school principals according to teachers' opinions?
- What is the level of organizational intelligence in schools according to teachers' opinions?
- According to the teachers' opinions, is there a significant relationship between the creative leadership characteristics of school principals and the organizational intelligence levels in schools?
- According to teachers' opinions, are school principals' creative leadership characteristics a significant predictor of school organizational intelligence level?

2. Methodology

The research model, participants, data collection tools, demographic information of the participants, data collection process, and data analysis are explained in this section.

2.1. Research Design

This research is a predictive study created with the correlation method, one of the quantitative research methods. The screening model, which tries to determine the existence or degree of possible change between two or more variables, is referred to as relational screening (Karasar, 2012; Chan, 2003; Büyüköztürk, 2016). In relational screening models, there are two types of variables called dependent, which is expressed as the affected and predicted variable, and independent, which has the power to influence (McLeod, 2019). The independent variable of this research is creative leadership, and the dependent variable is organizational intelligence.

2.2. Participants

The target population of the research consists of secondary school teachers working in the province of Van in the 2018-2019 academic year. The sample in this study is secondary school teachers working in the central districts of Van, Tusba, İpekyolu, and Edremit. Many different classifications of sample types have been made in the literature. Probabilistic and non-probabilistic sampling types are the most common (Balci, 2018;

Büyüköztürk, 2016). In such samplings, margins of error can be measured while generalizing the population. A simple random sampling method, one of the probability-based sampling types, was used in this study. As a result of the information obtained from the Van Provincial Directorate of National Education, it was determined that 1995 secondary school teachers were working in the central districts of Van, Tusba, İpekyolu, and Edremit. According to Anderson (1990), in cases where the population is 50,000 and 5,000 people, a sampling consisting of 381 and 356 people, respectively, is required to provide a .05 margin of error and a representation level of .95 (Cited by Balcı, 2018). As a result of this information, it was understood that 322 teachers could represent the universe in the calculation made by considering the 0.5 deviation amount. Considering the deficiencies such as incorrect coding and incomplete and incorrect information to be encountered in the application, 525 questionnaires were distributed to 27 schools. As a result of identifying and eliminating application errors, 451 scales that met the research conditions were used in data analysis. Demographic information about the participants is presented in Table 1.

Table 1. Demographic Information of Participants

Variables	Groups	N	%
Gender	Female	222	49,2
	Male	229	50,8
Marital Status	Married	245	54,3
	Single	206	45,7
State of Education	Bachelor's Level	404	89,6
	Post Graduate	47	10,4
Field of Study	Numerics	125	27,7
	Verbal	241	53,5
	Practical	85	10,8
Employment Situation	Staffed	306	67,8
	Contractual	145	23,2
Total Seniority in Teaching	0-3	148	32,8
	4-6	148	32,8
	7 and more	155	34,4
Working time in school	0-1	178	39,4
	2-3	126	28,0
	4 and more	147	32,6
	Total	451	100

2.3. Data Collection Tools

Teachers' opinions on the creative leadership characteristics of school principals and organizational intelligence levels in schools were investigated according to some variables. This study used a personal information form and two separate measurement tools to collect data. Personal Information Form: It is the form prepared by the researcher. There are questions to determine the criteria of gender, marital status, state of education, the field of study, employment situation, total seniority in teaching and working time in the school.

The Creative Leadership Qualities of School Administrators' Scale (CLQSAS): It is a scale used to measure teachers' views on creative leadership qualities. It is developed by Uçar and Sağlam (2019) as a 5-point Likert scale. The item numbers, the scale dimensions, and the arithmetic mean value range are presented in the table below.

Table 2. Statements of The Creative Leadership Qualities of School Administrators' Scale

Scale Dimensions	The Number of Items	Choice of Scale	Value Range
Entrepreneurship and effective communication	14	Do not agree at all	1.00-1.80
Openness to innovation and change	11	Little agree	1.81-2.60
Variety	4	Agree moderately	2.61-3.40
CLQSAS (Total)	29	Agree a lot	3.41-4.20
		Totally Agree	4.21-5.00

As seen in Table 2, the creative leadership qualities of school administrators' scale consist of three dimensions and a total of 29 items. Scale scoring: between 1.00-5.00, respectively, I disagree, I agree little, I agree

moderately, I agree a lot, and I totally agree. Scale averages are interpreted according to the given value ranges. The lowest score that can be obtained from the scale is 29, and the highest score is 145. Uçar and Sağlam (2019) tested the scale's reliability using the Cronbach Alpha coefficient and calculated the internal consistency coefficient of the scale as .98. It is found the same in this study. The validity analysis of the scale was performed and revealed that the CLQSA measurement tool is a valid measurement tool (Uçar & Sağlam, 2019)). In this context, CFA was performed for validity in this study. In the evaluation of the model, χ^2 / sd , RMSEA, GFI, NNFI, CFI and SRMR were considered as goodness of fit criteria. As CFA eligibility criteria, $\chi^2 / sd=2-5$, RMSEA=0.03-0.08, GFI>0.90, NNFI>0.80, CFI> 0.90 and SRMR< 0.05 values are accepted as threshold values in some studies, (Eskioglu, 2017; Suhr, 2006). Accordingly, because of CFA; As χ^2 / sd value is 3.70, NNFI=.92, CFI=.92, SRMR=.039, GFI= .81 and RMSEA=.078, it can be stated that the measurement tool of OMYLOO is valid.

Multi-Dimensional Organizational Intelligence Scale (MDOIS): It is a scale used to measure teachers' views on organizational intelligence. The scale, which was developed by Erçetin, Potas, and Açıkalın (2001, 2004, 2007, 2009) and was redesigned in 2015, consists of 67 items and 7 dimensions. The scope and number of items in the scale, which is a 5-point Likert form, are shown in the table below.

Table 3. *Statements of Multi-Dimensional Organizational Intelligence Scale*

Scale Dimensions	The Number of Items	Level	Value Range
Adapting to Changing Situations I	6	Incredibly low	1.00-1.80
Effective Communication with Stakeholders	11	Low	1.81-2.60
Quickness of Action and Response	6	Moderate	2.61-3.40
Sensing and predicting	10	High	3.41-4.20
Imagination and Creativity	8	Very High	4.21-5.00
Being Flexible and Comfortable in Practice	5		
Adapting to Changing Situations II	21		
MDOIS (Total)	67		

The MDOIS scale consists of seven sub-dimensions, as shown in the table above: adapting to changing situations I, effective communication with stakeholders, quickness in action and reaction, sensing and predicting, imagination and creativity, and being flexible and at ease in practice and adapting to changing situations II. It consists of 67 items. The lowest score that can be obtained from the scale is 67, and the highest score is 335. Neyişçi, et al. (2018), the Cronbach Alpha reliability coefficients of the scale were .98 for total scale and above .90 points for all sub-dimensions.

The construct validity of the multidimensional organizational intelligence scale was tested with CFA. χ^2/sd , RMSEA, GFI, NNFI, CFI and SRMR were considered in the CFA analysis. Accordingly, because of CFA, χ^2 / sd value was 1.80, NNFI=.98, CFI=.99, SRMR=.043, GFI= .92 and RMSEA=.064 values were obtained (Turan, 2017). In this study, the scale's construct validity was tested with CFA and in the evaluation of the model, χ^2 / sd , RMSEA, GFI, NNFI, CFI and SRMR were considered as goodness of fit criteria. Accordingly, because of CFA, the χ^2/sd value was 2.41, NNFI=.90, CFI=.91, SRMR=.030, GFI= .73, and RMSEA=.056, and it was revealed that the measurement tool of MDOIS is a valid measurement tool.

2.4. Collecting Data

The researcher personally collected the data in the second semester of the 2018-2019 academic year. To use the measurement tools in the research, permission was obtained from the provincial district governorship via official correspondence, first by e-mail, and then by official correspondence in public schools in the central districts of Van, İpekyolu, Tusba, and Edremit. The scales were applied to randomly selected schools. Measurement tools were applied in the teachers' room, considering the principle of voluntariness and giving necessary information during seminar times, breaks and exits during class times. Most of the distributed forms were received on the same day, and an intermediary received the forms that could not be received on that day from the relevant schools.

2.5. Data Analysis

In analyzing process, SPSS was used. Descriptive statistics such as average, frequency and percentage related to the demographic characteristics of the participants were used. Before the correlation and regression tests

were performed, whether the data were normally distributed, skewness and kurtosis values, Q-Q plots (Q-Q Plot) and histogram plots were examined.

When examining the skewness and kurtosis values of the scale of creative leadership characteristics of school principals, the entrepreneurship and effective communication sub-dimensions are 1.142 and 1.257, the openness to innovation and openness to change sub-dimensions are .987 and .683, the difference sub-dimension is -.378 and .429, and the total is .927 and .667; the adapting to changing situations sub-dimension of the multidimensional organizational intelligence With 973 and 871, the sub-dimensions of using imagination and creativity -.940 and .664 - and being flexible and comfortable in functioning -.997 and .977 - were obtained, respectively (Can, 2017). In this context, the distribution is assumed to be normal when the skewness and kurtosis values obtained, and the Q-Q Plot and histogram graphs are examined. When the assumption of normality is provided, the sample size of the data, whether there is a multicollinearity problem between them and the extreme values in the data set were calculated to apply multiple regression analysis.

Sample size. It is important to meet the sample size condition in multiple regression analysis, which is multivariate analysis. The number of predictor variables is important in the process of testing the sample size. The inclusion of 15 individuals in the data set for each predictor variable is an accepted criterion for sample size (Field, 2009). Miles and Shevlin (2001) stated that a sample size of 200 people was sufficient for up to 20 predictor variables. There are 3 predictive variables in this study, and there are approximately 117 subjects per variable in a sample of 451 people. According to these two conditions regarding the determination of the sample size, the data set was accepted as suitable for multiple regression calculation.

Multiple connection problem. Durbin Watson coefficient was used to determine whether there is a multicollinearity problem in the research data. A value range of 1.5 to 2.5 is a desirable value range, indicating that there is no multicollinearity problem. To check whether there is multicollinearity between the independent variables, tolerance, condition index value (CI), and variance amplification factor (VIF) values were considered. CI values should not be higher than 30, tolerance values should not be lower than .20, and VIF values should not be higher than 10. If it does not comply with the specified values, it can be stated that there is a multicollinearity problem between the independent variables (Yavuz, 2009; Büyüköztürk, 2018). The results of the multicollinearity analysis of the research data are presented in Table 4.

Table 4. Results of Multicollinearity Test

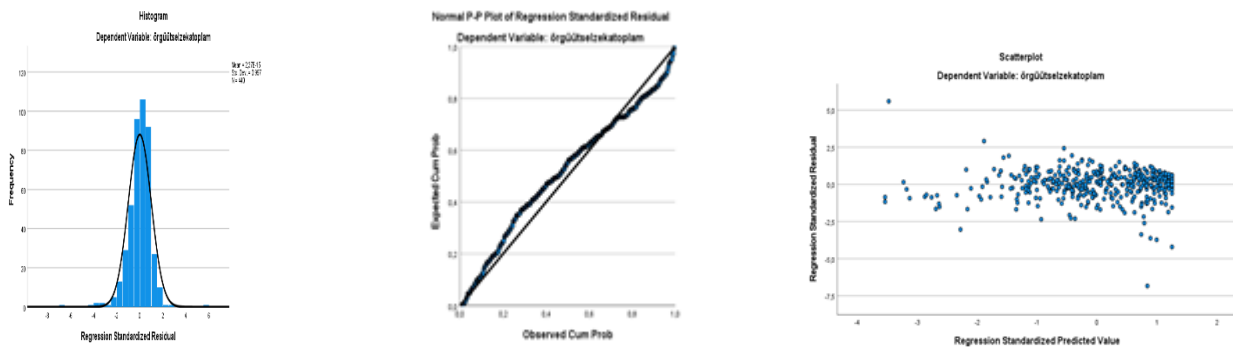
Variables	Durbin- Watsons	CI	Tolerance	VIF
Entrepreneurship and effective communication		10.603	,194	5.164
Openness to innovation and change	1.832	14.293	,162	6.171
Variety		30.235	,452	2.214

As seen in Table 4, since the Durbin Watson coefficient value is between 1.5 and 2.5 (1.83), it can be said that there is no multicollinearity problem. Although the CI value for the difference variable is 30.235, the tolerance and VIF values are acceptable, and the tolerance value for the openness to innovation and change variable is .162; although it is below the .20' limit, the CI and VIF values are acceptable, and finally, the tolerance value for the entrepreneurship and effective communication variable is .194, it can be seen that the CI and VIF values are acceptable. Since there was no multicollinearity problem in the entire data set, the variables were not excluded from the analysis. All these analyzes show that the data set is suitable for regression analysis.

Extreme values. In the regression analysis, some extreme values disrupt the compatibility of the existing regression model with the theoretical model. In determining multivariate extreme values, Cook's distance coefficient was examined. It was determined that Cook's distance values for all values were below 1. Another value that should be considered in determining multivariate extreme values is the distance values of Mahalanobis. As a result of the analysis, it was determined that all values were not less than 11,345 for a .001 significance level. In a regression analysis with 3 independent variables, the $p= 0.001$ Mahalanobis value is 11,345 (Can, 2017). For this reason, those with a value higher than 11,345 in the data set were not included in the analysis. With these applications, it can be interpreted as the absence of multivariate extreme values in the data set (Field, 2009).

Linearity and normality assumption. Normality and linearity assumptions of the predictive variables in the study were tested with graphs between standardized estimated values and standardized error (deviation) values.

When the graphs were examined, it was observed that the variables had a linear and positive relationship. In addition, it was determined that the histogram and normal distribution curves created for the standardized predicted values indicated a close to normal distribution. These findings show that the available data are suitable for multiple regression calculations. The graphs related to linearity and normality assumption are presented below.



After providing the assumptions as mentioned above, correlation and regression analyses were performed in the SPSS statistical program. Pearson Moments product correlation calculation technique was used in the correlation analysis. In addition, multiple regression analysis was calculated to determine the predictive levels of the independent variables (entrepreneurship and effective communication, openness to innovation and change, and diversity) on the organizational intelligence dependent variable in the research. Continuous variables were directly included in the analysis in the study. A total of 3 predictive variables were analyzed in the study. Enter method was used in multiple regression analysis.

3. Findings

In this section, the findings of the analyzes made within the framework of the research problem are given. The average score of school principals' creative leadership characteristics and organizational intelligence levels in schools in Table 5 has also been given.

Table 5. Statements of Multi-Dimensional Organizational Intelligence Scale

Scales	Sub- dimensions	n	X	Ss
The Creative Leadership Qualities of School Administrators' Scale	Entrepreneurship and effective communication	451	4,08	.94
	Openness to innovation and change	451	3,95	.91
	Difference	451	3,53	.98
Multi-Dimensional Organizational Intelligence Scale	Adapting to Changing Situations I	451	3,84	.89
	Effective Communication with Stakeholders	451	3,88	.84
	Quickness in Action and Reaction	451	3,97	.85
	Sensing and predicting	451	3,87	.87
	Imagination and Creativity	451	3,84	.90
	Being Flexible and Comfortable in Practice	451	3,79	.90
	Adapting to Changing Situations II	451	3,82	.88

When Table 5 is examined, the highest average in the Creative Leadership Qualities of School Administrators' Scale is 4.08 in the sub-dimension, "entrepreneurship and effective communication". The mean in the "difference" sub-dimension is 3.53, lower than the other dimensions. When the statistical Data on organizational intelligence is examined, the highest average is 3.97 in the "quickness in action and reaction" sub-dimension, and the lowest average is 3.79 in the sub-dimension of "being flexible and comfortable in practice".

Whether there is a relationship between creative leadership and organizational intelligence with their sub-dimensions was analyzed with the Pearson Product Moments Correlation coefficient. The findings are shown in Table 6.

Table 6. The Relationship between Creative Leadership Qualities of School Administrators and Organizational Intelligence Levels of Schools with Sub-Dimensions

Dimensions	Adapting to Changing Situations I	Effective Communication with Stakeholders	Quickness in Action and Reaction	Sensing and predicting	Imagination and Creativity	Being Flexible and Comfortable in Practice	Adapting to Changing Situations II	MI (Total)
Entrepreneurship and effective communication	.805**	.791**	.774**	.818**	.766**	.726**	.768**	.820**
Openness to innovation and change	.839**	.827**	.788**	.834**	.803**	.775**	.810**	.855**
Difference	.689**	.669**	.627**	.667**	.667**	.654**	.671**	.700**
CLQSA (Total)	.844**	.828**	.792**	.839**	.809**	.780**	.814**	.859**

** p <was significant at the 01 level.

The correlation coefficient is expressed as r and takes a value between -1 and +1. The closer this coefficient between the two variables is to the +1 direction, the higher and more positive a relationship is observed. If this value approaches -1, the relationship shows a negative trend. If the correlation coefficient is found to be 0, this indicates that there is no relationship between the two variables. There are generally accepted ranges of values to determine correlation levels. If the coefficients take a value between 0-0.30, it is interpreted as a low relationship, if it takes a value between 0.30-0.70, it is a medium-level relationship, and if it takes a value between 0.70-1, it is interpreted as a high relationship (Büyüköztürk, 2007).

There is a highly positive and significant relationship between organizational intelligence's sub-dimension of "adapting to changing situations I" and the school administrator's creative leadership qualities sub-dimensions of "entrepreneurship and effective communication" (r=.80, p.01), "openness to innovation and change" (r=.83, p.01), and the total value of the creative leadership qualities of the school administrator and the "difference" sub-dimension is moderately positive and statistically significant (r=.68, p.01). There is a highly positive and significant relationship between the sub-dimension of organizational intelligence, "effective communication with stakeholders," and "entrepreneurship and effective communication" (r=.79, p.01), "openness to innovation and change" (r=.82, p.01), and the sum of creative leadership qualities of school administrators (r=.82, p.01). There is a moderately positive relationship between school administrators' creative leadership qualities and the "difference" sub-dimension (r=.66, p.01).

"Quickness in action and reaction" and "creative leadership" are correlated with organizational intelligence in school principals, as are "entrepreneurship and effective communication" (r=.77, p.01) and "openness to innovation and change" (r=.78, p.01). sub-dimensions There is a strong positive correlation (r =.79, p.01) between school principal dimensions and the total number of creative leadership characteristics among school principals. The relationship between the creative leadership characteristics of school principals and the "difference" sub-dimension is moderately positive (r=.62, p.01).

There is a strong positive and significant relationship between the "sensing and predicting" sub-dimension of organizational intelligence and "entrepreneurship and effective communication" (r=.81, p.01) and "openness to innovation and change" (r=.83, p.01) sub-dimensions of creative leadership qualities of school administrators and the sum of the creative leadership characteristics of school principals (r=.83, p.01). There is a moderately positive and statistically significant relationship between the "sensing and predicting" sub-dimension of organizational intelligence and the "difference" sub-dimension of creative leadership qualities of school administrators (r = 0.66, p .01).

There is a highly positive and statistically significant relationship between the "using imagination and creativity" sub-dimension of organizational intelligence and the creative leadership qualities of school administrators' sub-dimensions "entrepreneurship and effective communication" (r=.76, p .01) and "openness to innovation and change" (r=.80, p .01) and the sum of the creative leadership qualities of school administrators' (r=.80, p .01). There is a moderately positive and statistically significant relationship between

the "using imagination and creativity" sub-dimension of organizational intelligence and the "difference" sub-dimension of school administrators' creative leadership qualities ($r=.66$, $p.01$).

There is a highly positive and significant relationship between "being flexible and comfortable in practice" and "entrepreneurship and effective communication" ($r=.72$, $p.01$) and "openness to innovation and change" ($r=.77$, $p.01$) sub-dimensions of creative leadership qualities of school administrators and the total of creative leadership qualities of school administrators ($r=.78$, $p.01$). Considering the "difference" sub-dimension ($r=.65$, $p.01$) of school administrators' creative leadership qualities, there is a moderately positive and significant relationship between "being flexible and comfortable in practice" and organizational intelligence.

There is a highly positive and significant relationship between the "adaptation to changing situations II" sub-dimension of organizational intelligence and the "entrepreneurship and effective communication" ($r=.76$, $p.01$) and "openness to innovation and change" ($r=.81$, $p.01$) sub-dimensions of creative leadership qualities of school administrators and their sum ($r=.81$, $p.01$). The relationship between the "adapting to changing situations II" sub-dimension of organizational intelligence and the "difference" sub-dimension of school administrators' creative leadership qualities is moderately positive and statistically significant ($r=.67$, $p.01$). When considered in terms of sub-dimensions, the "difference" sub-dimension of the creative leadership qualities of school administrators' "adapting to changing situations II" sub-dimension of the organizational intelligence has a moderate positive relationship; on the other hand, "entrepreneurship and effective communication" and "openness to innovation and change" dimensions of the creative leadership qualities of school administrators' are also highly correlated with the "adaptation to changing situations II" sub-dimension of organizational intelligence. The total score of the creative leadership qualities of the school administrators' scale is in a highly positive and significant relationship with the total scale score and each dimension of organizational intelligence. In terms of value, it is seen that the highest correlation value is between the sum of the creative leadership qualities of school administrators and the "quickness in action and reaction" sub-dimension of organizational intelligence. Taking into account the innovative leadership qualities of school administrators, this high-level correlation between the need for leaders who can quickly recognize a problem situation and begin working on a solution and the "quickness in action and reaction" sub-dimension of organizational intelligence can be interpreted as a positive result.

The results of the multiple regression analysis regarding whether the sub-dimensions of school administrators' creative leadership qualities significantly predict the organizational intelligence level of schools are presented in the table below.

Table 7. Multiple Regression Analysis Results on the Contribution of Continuous Variables in Predicting the Dependent Variable of Organizational Intelligence

Variables	B	Standard Error	B	t	P	Binary R	Partial R
Constant	.670	.097	-	6.914	<.001		
Entrepreneurship and Effective Communication	.214	.051	.237	4.191	<.001	.104	.197
Openness to Innovation and Change	.461	.056	.504	8.169	<.001	.203	.364
Difference	.140	.031	.168	4.536	<.001	.113	.212

$R=.855$; $R^2=.731$; $F_{(3439)}=394.974$; $p<.001$

Examining the results in Table 7, it is found that the relationships between the predictor variables and the dependent variable "organizational intelligence" are correlated at the levels indicated: "entrepreneurship and effective communication" ($r=.104$, $pr=.197$), "openness to innovation and change" ($r=.203$, $pr=.364$), and "difference" ($r=.113$, $pr=.212$). It is seen that the stated variables together predict the Organizational Intelligence Levels dependent variable significantly ($F=394.974$; $p<.001$). All variables together explain approximately 73% ($R^2=.731$) of the dependent variable, Organizational Intelligence. According to the standardized regression coefficient (β), the relative importance order of the predictor variables on the dependent variable of Organizational Intelligence Levels is "openness to innovation and change", "entrepreneurship and effective communication," and "difference". Examining the t-test results for significance of the regression coefficients, it is found that the independent variable "entrepreneurship and effective communication" ($\beta=.237$ $p<.001$), the

independent variable "openness to innovation and change" ($\beta = .504$ $p < .001$), and the independent variable "difference" ($\beta = .168$ $p < .001$) are positive and significant predictors of the dependent variable "organizational intelligence level." In this context, it can be said that all the mentioned variables together are a positive and significant predictor of the Organizational Intelligence Levels dependent variable.

4. Conclusion, Discussion and Recommendations

As a result of this research, all teachers state "I agree very much" in sub- dimensions and total scale of Creative Leadership. This result can be interpreted as teachers finding school administrators' creative leadership qualities high. As a result of the research conducted by Dikmen Ada (2012), participation was expressed as "a little more than moderate". In this study, creative leadership qualities were found at the level of "very agree". The research conducted by Öztürk (2014) also indicates that creative leaders exist in the education system. Creative leaders are brave (Li & Yue, 2019); they are willing and quick to respond to events (Stenberg, 2004); their communication skills are valuable (Katz-Buonincontro, 2005); and they are entrepreneurial in addressing problems encountered (Ball, 2018); and they support the findings of the research. The fact that there is greater participation in the "entrepreneurship and effective communication" sub-dimension compared to the other dimensions can be interpreted as follows when the averages are calculated: Creative leaders are those who act entrepreneurially and can effectively communicate with their stakeholders.

As a result of this research, all teachers state 'high level' in sub-dimensions and total scale of Organizational Intelligence Level. Organizational intelligence, defined as an organization's ability to survive change (Yörük, 2006), synthesize the necessary information for problem solving (Stalinski, 2004), create designs using imagination (Tekin, 2008), and maintain their existence and respond to environmental needs (Erçetin & Demirbulak, 2002), is regarded as an important enabling factor. In this context, having a 'high level' of participation in the sum and sub-dimensions of organizational intelligence, it can be interpreted as teachers are aware of the importance of organizational intelligence levels of schools.

According to the research results, a positive statistically significant relationship was found between the creative leadership qualities of school administrators and all sub-dimensions that make up the organizational intelligence levels of schools. It is important that creative leaders use organizational intelligence by blending them into education in institutions where they lead (Samurçay, 1983). Because organizational intelligence needs to adapt to changes in harmony with the environment and approach these changes in an innovative way to meet social needs. At this point, leaders who use their creativity in coping with new situations will be more successful. Creative leaders establish a system that can manage uncertainty, continuous change, and the chaos that this change brings (Ruiz-Mills, 2019). Organizational intelligence, on the other hand, is seen as a system that can produce innovative solutions for the problem situations brought by change, maintain the existence of the organization and work in harmony with the environment (Mikesell, 2000; Neyişçi, et al., 2018; Göktaş, 2017). In this context, it is thought that the relationship between the creative leadership qualities of school administrators reached in the research and the organizational intelligence levels of the schools is understandable.

Apart from the 'difference' sub- dimension, a high positive relation was found between the other sub-dimensions and the total scale of creative leadership qualities of school administrators and all sub- dimensions and the total scale of organizational intelligence level. 'Difference' sub- dimension has moderate relationship between all sub- dimensions and the total scale of organizational intelligence level. With these results, a lot of idea about creative leadership can be ensured. Creative leaders embody structuralist features such as respect, solidarity, cooperation, and effective communication (Katz-Buonincontro, 2005). Creative leaders strive to create an innovative and free environment (Mainemelis, Kark, & Epitropaki, 2015). In this formation process, they can create an effective communication network with different segments of their environment (Ubben, Hughes, & Norris, 2001). Creative leaders bring together differences, exhibit collaborative work and create effective communication networks (Stoll & Temperley, 2009). Creative leaders are individuals who are able to effectively use communication in their management processes (Basadur, 2004), create effective communication channels (Katz-Buanincantro, 2005), improve communication in all areas (Stoll & Temperley, 2009), and incorporate effective communication skills (Katz-Buonincontro, 2005).

Within the regression analysis framework, the research findings show that the creative leadership qualities of school administrators have significant effects on the organizational intelligence levels of the schools. According to this, 73% of the school's organizational intelligence levels stem from school administrators' creative leadership qualities ($R^2=.731$). It was found that the creative leadership qualities of school administrators, entrepreneurship and effective communication, openness to innovation and change, and difference sub-dimensions positively predicted the organizational intelligence levels of schools. No study has been found in the literature showing such a strong relationship between intelligence and creativity, but a study explains 20% of creativity in intelligence areas (Yenilmez & Çalışkan, 2011). There are also studies stating that intelligence affects the creative thinking process (Yenilmez & Bozkurt, 2006; İzci, Kara & Dalaman, 2007; Tekin, 2008; Karataş Öztürk, 2007; Yenilmez & Çalışkan, 2011; Demirci, 2007). However, in this study, it is concluded that school administrators' creative leadership qualities strongly predict the schools' organizational intelligence levels. Leaders who can use intelligence effectively in creativity (Tekin, 2008; Jung, 2009) are needed in this context. The necessity of blending creativity into the education system is again encountered (Samarçay, 1983). In this context, the training of school administrators becomes important and innovative programs are required to train leaders (Işık, 2003).

Creative leadership requires the ability to manage the problems brought by change and development, to manage the complexity and to direct the change (Yu, 2009; Palus & Horth, 2005). In this context, the relationship between sub-dimensions and total scales makes these ideas true. This is because creative leaders leverage their creativity for change and exhibit breakthrough behaviors that have a positive impact on adapting to changing situations (Craig, 2015; Ruiz-Mills, 2019; Xu & Rickards, 2007). To adapt to change, leaders are expected to be willing to change (Makri & Scandura, 2010). Therefore, it can be stated that creative leaders who are open to innovation and change can adapt to changing situations more easily. Also, It can be said that the creative leader's ability to use the differences s/he encounters positively is related to adaptation to changing situations. It can be said that the ability of creative leaders to take fast and bold steps toward the situations they encounter for innovation and change (Ubben, Hughes, & Norris, 2001) is related to quickness in action and reaction. The characteristics of a creative leader include the ability to synthesize differences and use them effectively. Creative leaders are able to quickly grasp all kinds of changes and differences and turn them into management skills (Marşap, 2009).

Change brings with it the necessity of innovation and innovation in today's world. Creative leaders open to innovation and change can offer solutions to problems by managing the complexity of changing situations (Williams & Foti, 2013). The efficient use of differences by bringing them together is considered important to adapt to change (Stoll & Temperley, 2009). Organizations must adapt to changing conditions and meet social needs (Erçetin, 2004). In this adaptation process, leaders who are open to innovation and change and who can use creative works effectively in organizations are needed (Mumford & Gibson, 2011). Therefore, it can be accepted that the behaviors of school administrators displaying creative leadership qualities are related to the school's organizational intelligence levels.

Organizations must be different, innovative, and original to meet these expectations. To have these differences, they need to develop their creativity (Memduhoğlu, Uçar, & Uçar, 2017). Creative leaders are expected to activate creativity within themselves and the organization (Williams & Foti, 2013). The main task of schools is to raise creative individuals (Memduhoğlu, Uçar, & Uçar, 2017). In order to grow creative people, it is necessary to create a suitable environment in which creativity can flourish (Stoll & Temperley, 2009). Creative leaders are expected to create this environment. In this context, it can be said that the sum of school administrators' creative abilities is related to the level of organizational intelligence of schools by using imagination and creativity. In this study, which examined the relationship between the creative leadership qualities of school administrators and the organizational intelligence levels of the schools, it was found that creative leadership qualities accurately predicted the organizational intelligence of schools and that creative leadership traits and organizational intelligence levels were positively, significantly, and highly correlated. In this context, the study's conclusions are considered important to the body of knowledge. Based on the results, the following recommendations for researchers are made. Future research would do well by further exploring the creative school administrators' effect on organizational intelligence. Using the scale in studies that include different samples and students at different educational levels such as primary school, high school, and

university. It is recommended that school administrators be able to learn about creativity, how it occurs, and how it is managed.

6. References

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