| Research Article / Araştırma Makalesi |

Relatıons Between Error Management Culture, Work Engagement And Organizational Creativity

Hata Yönetimi Kültürü, İşe Cezbolma ve Örgütsel Yaratıcılık Arasındaki İlişkiler[1]

Zülküf NANTO[2], **Mukadder Boydak ÖZAN**[3]

Abstract

Purpose: The purpose of this research is to determine the effects of error management culture and work engagement behaviors on organizational creativity.

Design/Methodology/Approach: In this study, the relational screening model was used since it was aimed to determine the relationship, relational change, effect and their degrees between at least two variables. In the 2018-2019 academic year, 747 teachers working in primary and secondary schools in five education regions in the city center of Elaziğ constitute the sample of the research. Relational screening model was used. The "Error Management Culture" scale was developed by the researcher. In the research, structural equation analysis was used to measure the effects of error management culture and work engagement behaviors on organizational creativity, and correlation analysis was used to measure the relationship between these concepts. In this research, a mediation analysis was conducted considering that the error management culture has a mediating role in the effect of work engagement behaviors on organizational creativity.

Findings: In the research, it has been determined that the error management culture and the behaviors of work engagement have a significant relationship with organizational creativity. Error management culture and work engagement predict organizational creativity positively, significantly and weakly. In the mediation analysis, it was concluded that the error management culture partially mediate the effect of work engagement behaviors on organizational creativity.

Highlights: In schools, practices that support teachers' engagement to work should be included. In addition, in-service trainings and informative trainings on managing errors should be given to administrators and teachers.

Öz

Çalışmanın amacı: Bu araştırmanın amacı, hata yönetimi kültürü ve işe cezbolma davranışlarının örgütsel yaratıcılık üzerindeki etkilerini belirlemektir.

Materyal ve Yöntem: Bu çalışmada en az iki değişken arasındaki ilişkinin, ilişkisel değişimin, etkinin ve bunların derecelerinin belirlenmesi amaçlandığından ilişkisel tarama modeli kullanılmıştır. 2018-2019 eğitim- öğretim yılında, Elazığ il merkezindeki beş eğitim bölgesindeki ilk ve orta dereceli okullarda görev yapan 747 öğretmen araştırmanın örneklemini oluşturmaktadır. İlişkisel tarama modeli kullanılmıştır. "Hata Yönetim Kültürü" ölçeği araştırmacı tarafından geliştirilmiştir. Araştırmada hata yönetimi kültürü ve işe bağlılık davranışlarının örgütsel yaratıcılık üzerindeki etkilerini ölçmek için yapısal eşitlik analizi ve bu kavramlar arasındaki ilişkiyi ölçmek için korelasyon analizi kullanılmıştır. Bu araştırmada, işe cezbolma davranışlarının örgütsel yaratıcılığa etkisinde hata yönetimi kültürünün aracılık rolü olduğu düşünülerek bir aracılık analizi yapılmıştır.

Bulgular: Araştırmada, hata yönetimi kültürü ve işe cezbolma davranışlarının örgütsel yaratıcılık ile anlamlı bir ilişkisi olduğu tespit edilmiştir. Hata yönetimi kültürü ve işe cezbolma, örgütsel yaratıcılığı olumlu, önemli ve zayıf bir şekilde yordamaktadır. Aracılık analizinde, hata yönetimi kültürünün işe cezbolma davranışlarının örgütsel yaratıcılık üzerindeki etkisine kısmen aracılık ettiği sonucuna varılmıştır.

Önemli Vurgular: Okullarda öğretmenlerin işe cezbolmalarını destekleyen uygulamalara yer verilmelidir. Ayrıca yöneticilere ve öğretmenlere hizmet içi eğitimler kullanılarak, hataları yönetme konusunda bilgilendirici eğitimler verilmelidir.

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[1] This research is derived from the doctorate thesis.
[2] **Corresponded Author,** Fırat Üniversitesi, Eğitim Bilimleri, Eğitim Yönetimi, Elazığ, TÜRKİYE; zlkfnnt@hotmail.com, https://orcid.org/0000-0002-4048-9723
[3] Fırat Üniversitesi, Eğitim Bilimleri, Eğitim Yönetimi, Elazığ, TÜRKİYE; mboydak@firat.edu.tr, https://orcid.org/0000-0001-5690-6985

INTRODUCTION

Having a say in the changing world, creating new products and being able to compete will be possible with the production of knowledge. The production and sustainability of knowledge will be ensured by educating the members of the organization by using previously unused ways and enriched trainings. Education affects individuals in particular and the whole society in general. If the education and training process is carried out in a healthy way, the society will be affected positively. If this process cannot be carried out properly, it will be negatively affected (Ertürk, 1992). The most important actors of this important process are teachers. Because teachers are the direct implementers of the ultimate goals of education (Köse, 2015, p.10). Behaviors of teachers and school administrators in the school environment primarily affect themselves, then other stakeholders of the school such as students and parents, etc. As a result of this interaction, a culture will be formed in the school. The resulting culture will be learned and shared by the stakeholders of school and transferred from generation to generation. In this transfer, culture and individual will affect each other, while culture will affect the life of the person, the individual will also affect the culture (Şişman, 2002, p.1-2). Considering the mentioned effect of culture, the fact that the managers follow employees' work proportionally and without exaggeration and praise the successful ones will reduce the negative emotion that will occur in the employees at any time. The fact that the employees can share their troubles easily and that the given job is at a level that the employee can do will increase the desire and excitement of the employees towards their work (Küçüksayraç, 2013, p.28). In addition, continuous support of change and development, detection of mistakes and tolerance in a proportionate way will help in correcting mistakes. Because as long as human actions exist, there will be mistakes. People need to accept this so that the concept of error will be better understood (Gronewold & Donle, p.2011). Error is defined as wrong, mistake, crime, sin and fault made unintentionally (TDK Current Turkish Dictionary, 2020). Error management, focuses on the causes of the error by taking the necessary steps and changing the rules in order to prevent the errors from happening again and to minimize the undesirable situations that occur as a result of the error (Helmreich, 1998).

Management of errors in organizations is an element of organizational culture. Error management culture is the form of communication and information network that the members of the organization will reveal while performing the transactions and they use about the error. It refers to all the practices and official procedures related to how the error is detected, what tools and methods are used to solve it, and how they deal with these errors (Van Dyck et al., 2005). According to the researcher, the error management culture expresses the emotional and behavioral process experienced by the members of the organization in the time period between the moment the error occurs and the moment it results. This process includes all activities related to ways of responding to the error, sharing of errors, responsibility for errors and response to the error. The competencies that employees have in managing errors are also part of the process. In institutions with a high error management culture, learning from mistakes is provided, and the way to learn from mistakes is as follows (Guchait et al., 2015): Creating awareness about mistakes, making employees feel responsible for mistakes, analyzing mistakes in accordance with the system, sharing experiences against mistakes, sharing the situations that cause mistakes, high level of information sharing of employees, supporting the ability to talk about mistakes.

All practices related to error management will lead to the formation of a cultural process within the organization over time. It is thought that this process will be shaped by organizational phases in error management. According to Goodman et al. (2011) the first stage is before the error occurs, the second stage is what happens during the occurrence of the error, and the final stage is the stage after the error occurs. Rybowiak et al. (1999, p.532) divided the error management culture, which has three different phases, into dimensions according to its content, duration and management style as follows. *Dealing with Errors:* Having the knowledge and skills to solve the errors as quickly as possible. *Learning from mistakes*: It is to gain some future gains from mistakes. *Taking the Risk in Failure*: It means being flexible against mistakes. *Error Pressure*: It refers to thinking about the troubles and fears that mistakes can bring to him. *Awareness that Errors Can Occur:* Accepting that mistakes are unavoidable and relevant to the job. *Closing Errors*: It means ignoring and hiding errors. *Communicating about Errors*: It means that employees can talk and discuss about mistakes. *Thinking about Mistakes*: It refers to generating ideas for the mistakes that occur within the organization.

It can be said that one of the ways to be successful in the management of mistakes is to have high energy of employees towards their work. The high level of work-oriented energy brings to mind the concept of work engagement. Goffman defined work engagement as a person's energizing work, embracing the role one has, being selected for the designated role, and a visibly active interest, commitment, or spontaneous participation in the behavior that that role imposes on the person, interest and effort (Goffman, 1959). Making one of the largest studies on the subject, Schaufeli et al. (2002, p.74) stated that work engagement consists of three sub-dimensions: vigor, dedication, and absorption. He explained these dimensions as follows (Turgut, 2013, p.2): *Vigor:* Willingness to go to work, having work-related energy. *Dedication:* Thinking that the work you do is meaningful and serves a purpose. *Absorption:* Not forgetting everything while working, not understanding how time passes, not getting caught up in the work being done.

There are a number of factors that affect work engagement, which are considered in three dimensions: *Individual Factors*: The individual knows himself well, makes good use of the time given, gives importance to personal development, has sufficient knowledge about his job, is committed to his institution, has motivating factors, establishes an emotional bond with the other, adopts the goals of the organization by not seeing their own goals higher than the organization's goal (Çakıl, 2011). *Organizational Factors*: Factors such as establishing a fair reward system within the organization, ensuring that people are equally distributed

and controlled, supporting employees by providing opportunities, providing feedback to employees about their work, ensuring the health and safety of the workplace, and supporting the employee of the organization are organizational factors that affect work engagement. (Wollard & Shuck, 2011). Work engagement, whose dimensions are given above, creates a motivated state of well-being that provides positive job-related satisfaction (Schaufeli & Bakker, 2004). According to Bal (2009), the energy of the person increases and the idea of quitting his job decreases during the period of increased work engagement. In addition, it has been determined that there is a very strong connection between the engaged employee and the employee's commitment to their organization, the excitement experienced during work, the search for innovation and difference (Haid and Sims 2009; cited in Bostancı and Ekiyor, 2015, p.40).

Definitions that will be created by strengthening the relationship between the organization and thinking differently and seeking innovation explain organizational creativity. In order to understand organizational creativity, first of all, it is necessary to know what creativity is. In the simplest sense, creativity means discovery, invention and innovation. Creativity makes you feel that it is the most important condition of innovation by revealing the thought that was not thought, previously thought and not applied (Yalazan, 2006). Organizational creativity is "the development of new and useful ideas about products, services and processes by individuals or groups within an organization" (Martins and Terblanche, 2003). New ideas come only from the hands of creative people. For this reason, creativity is primarily individual, for this reason, providing and maintaining organizational creativity will be possible if the organization creates a work environment where employees can reveal their creativity and makes some organizational arrangements for creativity (Çekmecelioğlu, 2002). It is important to remember that change is inevitable. The organization's existence in this change will only be possible with creative and innovative employees and the culture they create, and they will gain superiority by providing creativity (Yüceler, 2009). Balay (2010) examines organizational creativity in three dimensions as individual, managerial and social: *Individual creativity*: It is the characteristics that reveal the creativity of the individual. (Yıldırım, 2007, p.112) *Managerial Creativity*: It is defined as enabling the manager of the organization to express the creativity features of the employees. (Chang and Chiang, 2007). *Social Creativity*: It is the relationship between the support of the social environment and the creativity level of the person (Balay, 2010).

Organizational creativity, which is handled in three different dimensions, includes different processes such as the emergence of ideas, development of ideas and implementation (Yıldırım, 2007). Because respecting new ideas, valuing individuals, being open to discussions, and providing freedom creates an atmosphere of creativity in the educational environment (Sungur, 1997). Increasing freedom and providing error-oriented communication (Carmeli ve Gittell, 2009) contribute to the establishment of trust between the teacher and the administration (Helmreich, 1998) and the formation of a culture of error management. Establishing a trial-and-error environment by encouraging the teacher, giving confidence, ensuring that he overcomes his fears (Kahn, 1990), distribution of work equally, and supporting the teacher by providing opportunities (Wollard ve Shuck, 2011) ensure that teachers are attracted to work. As can be seen, strong communication in schools, a healthy and safe work environment, respect for ideas, encouraging and freedom are common determinants of error management, engagement and organizational creativity. In the light of the aforementioned information, it is possible to say that there may be a connection between engagement, organizational creativity and error management culture.

For this reason, it is a matter of curiosity how teachers' energies towards their work change as a result of the mistakes they experience in schools and how these two situations affect their creativity behaviors in schools. From this point of view, teachers' perceptions and roles are of great importance in the formation of the targeted error management culture, ensuring that the employees are attracted to the work, and organizational creativity comes to the fore. In this study, it has been considered as a problem whether the culture related to the management of mistakes in schools and the teachers' work engagement behaviors predict organizational creativity, and whether the error management culture has a determining feature in the relationship between work engagement and organizational creativity.

When the literature is examined, it is seen that there is not enough number and variety of research on the concepts of work engagement, error management culture and organizational creativity. In the literature review for this study, no studies were found that used the concepts of error management culture, work engagement and organizational creativity together and examined the relationship between them. In fact, it has been determined that error management culture from these three concepts has not been examined in educational environments. However, it is thought that the essence of creativity will be innovation, and innovation will be provided by a culture that is open to innovation as a structure and can manage mistakes. This situation reveals the fact that it is necessary to examine the relationship between organizational creativity and error management culture. From this point of view, examining the relationship between error management culture, work engagement and organizational creativity, presenting relevant findings and developing suggestions will contribute to the literature with the topicality of the research topic, its diversity and the diversity of the sample in the research.

Purpose of the Research

The general purpose of this study is to determine the relationship between error management culture and work engagement behaviors with organizational creativity. Sub-objectives have been created for this general purpose;

1. Is there a significant relationship between error management culture, work engagement and organizational creativity?
2. Are error management culture and work engagement a significant predictor of organizational creativity?

The general purpose of the research and the hypothesis for the first research question are as follows: **H₁:** Error management culture and work engagement are significant predictors of organizational creativity.

METHOD

In this study, the relational screening model was used since it was aimed to determine the relationship, relational change, effect and their degrees between at least two variables (Creswell, 2012).

Universe and sample

Since it is a method that best meets the purpose of the research, stratified sampling method, one of the random sampling methods, was used. (Miles and Huberman, 1994). The population of the research consists of a total of 2691 teachers, 1233 of whom work in primary schools and 1458 in secondary schools, located in five educational regions with differences in terms of various variables (social, economic, cultural, etc.) in the city center of Elazig. The sample size was calculated according to +-0.03 sampling error and 747 was found using the formula (Sümbüloğlu & Sümbüloğlu, 2007). Of the 747 teachers who participated in the research, 394 (53%) were male and 353 (47%) were female. 103 (14%) of the teachers participating in the research are 1-5 years, 119 (16%) are 6-10 years, 112 (15%) are 11-15 years, 131 (17%) are 16-20 years and 103 (38%) of them have 21 years or more seniority; 443 (60%) were classroom teachers and 304 (40%) were branch teachers. It is seen that 499 (67%) graduated from the faculty of education, 194 (26%) from the faculty of science and literature, and 54 teachers (7%) graduated from other educational institutions.

Data Collection Instruments

Three different scales were used to collect data in line with the general purpose and sub-purposes of the research.

Work Engagement Scale

A frequently used scale in research, "Work Engagement" scale, which is called the "Utrecht Work Engagement Scale (UWES)" and developed by Schaufeli et al. (2002), was used in this study. The scale consists of 3 dimensions and 17 items. The translation of the scale into Turkish, validity and reliability studies were carried out by Turgut (2013). In the validity test, the power to explain the concept of work engagement was found to be 62.21%, and each statement was placed under the predicted factor with a weight above 0.50.

Confirmatory factor analysis was applied to test the validity of the Work Engagement Scale. Since the confirmatory factor analysis results were within the acceptable range (X2/sd: 4,321, GFI: .935, AGFI: .908, CFI=.953, NFI=.940, IFI=.953, SRMR=.044, RMSEA=.058) , the validity of the scale was ensured (Kline, 2011; Baumgartner & Homburg, 1996; Bentler, 1980; Schermelleh-Engel & Moosbrugger, 2003; Brown, 2006; Tabachnick & Fidell, 2007). The factor loads obtained as a result of the confirmatory factor analysis of the scale were found to be between 0.57 and 0.83 for the vigor sub-dimension, between 0.60 and 0.81 for the devotion sub-dimension, and between 0.60 and 0.78 for the absorption sub-dimension. In this study, the Cronbach Alpha internal consistency coefficients of vigor, dedication and absorption were calculated as 0.851, 0.854 and 0.865, respectively. The Cronbach's alpha coefficient for all items of the Work Engagement Scale was found to be 0.934, and it was seen that the reliability of the scale based on internal consistency was high (Tavşancıl, 2014).

Organizational Creativity Scale

The "Organizational Creativity Scale" developed by Balay (2010) was used in the research. The scale consists of 3 dimensions and 39 items. When the factor loads were examined, it was seen that they varied between .47 and .88. In addition, 20.3%, 19.7% and 18% are the variance rates explained by each factor, respectively. Three factors explain 58% of the total variance. Alpha coefficients were calculated as .92 for the first factor, .93 for the second factor, and .95 for the third factor, respectively.

CFA analysis was conducted to test the validity of the organizational creativity scale. Since the confirmatory factor analysis results (X2/sd: 3.378, CFI=.906, NFI=.901, GFI=.916, AGFI: .857 IFI: .904, SRMR=.042, RMSEA=.062) were within the acceptable range, it can be said that the scale has validity (Kline, 2011; Baumgartner & Homburg, 1996; Bentler, 1980; Schermelleh-Engel & Moosbrugger, 2003; Brown, 2006; Tabachnick & Fidell, 2007). The factor loads obtained as a result of the confirmatory factor analysis of the scale were found to be between .55 and .75 in the dimension of individual creativity, between .47 and .87 in the dimension of managerial creativity and between .51 and .88 in the dimension of social creativity. In this study, the Cronbach Alpha internal consistency coefficients belonging to the sub-dimensions of individual creativity, managerial creativity and social creativity were calculated as .936, .931 and .927, respectively. Cronbach's alpha coefficient for all items of the organizational creativity scale was found to be .960, and it was concluded that the scale was reliable.

Error Management Culture Scale

Various stages have been passed to develop the error management culture scale. It is possible to list these stages as follows:

1. The Lawshe (1975) technique was used to ensure the content validity of the "Error Management Culture" scale developed by the researcher. First of all, the opinions of twelve experts were taken. *In the second step*, a literature review was conducted to identify the possible items of the scale (Edmondson, 2004; Goodman et al., 2011; Keith & Freze, 2011; Van Dyck et al., 2005) and a pool of 41 items was developed. *In the third step*, expert opinions were obtained about the items in the scale. *In the next step*, content validity rate (CVR) was calculated for each item by evaluating the expert opinion, and 10 items were removed from the draft version of the scale as they were below the statistical criteria (Veneziano & Hooper, 1997). *In the fifth step*, the total content

validity index (CVI) for the remaining items was calculated as 0.74. The content validity of the scale, consisting of 31 five-point Likert-type items ranging from strongly disagree to strongly agree, was completed.

2. There are different sampling approaches for validity and reliability analyzes in the literature related to scale development studies. There are studies suggesting that the number of samples should start from 4 times the number of items to 10 times or be in this range (Büyüköztürk, 2010; Kurnaz & Yiğit, 2010; Tavşancıl, 2014; Widaman et al., 2009). In this study, in the light of the above information, 312 different teachers were reached for exploratory factor analysis and 324 different teachers for confirmatory factor analysis.

3. For the Error Management culture scale, firstly, exploratory factor analysis was performed. The lowest item factor load of .56 in the final version of the scale indicates that the items have the desired factor load. In addition, KMO and Bartlett tests were also carried out. It was revealed that the obtained KMO value (0.848) and Bartlett's test of Sphericity result (2098.483, p=0.000: p<.01) were suitable (Büyüköztürk, 2010). After all these analyzes were made, it was seen that the scale consisted of 4 dimensions and 16 items. According to the results obtained, the Sharing of Error dimension consists of five items with factor loadings ranging between .563 and .773 and explains 30.05% of the total variance. The Error Competence dimension consists of five items with factor loadings ranging from .577 to .811 and explains 50.93% of the total variance. Error Avoidance dimension consists of three items with factor loadings varying between .742 and .809 and explains 58.40% of the total variance. Response to Error dimension, on the other hand, consists of three items with factor loadings ranging between .677 and .861 and explains 64.69% of the total variance.

Confirmatory Factor Analysis was applied to test the Error Management Culture Scale. After the model created, it was determined that the Chi-Square/sd value (193.917/97=1.999) showed a perfect fit (Kline,2011). Other values obtained from CFA (CFI=.945, NFI=.905, IFI: .946 AGFI: .912, GFI=.927, SRMR=.051, RMSEA=.058) are proof that the scale is in acceptable fit (Baumgartner & Homburg, 1996; Bentler, 1980; Schermelleh-Engel & Moosbrugger, 2003; Brown, 2006; Tabachnick & Fidell, 2007). In the "Error Competence" dimension, it was decided to make a correlation between the 4th and 5th items together with the expert opinion, and the model took its final shape. According to the CFA results obtained, the factor loads of the items belonging to the Error Sharing dimension were .760, .750, .679, .565 and .543, respectively; the factor loads of the items belonging to the Error Competence dimension were .823 and .709, .706, .657, .567, respectively; the factor loads of the items belonging to the Error Avoidance dimension were found to be .763, .723, .709, respectively, and the factor loads of the items belonging to the Response to Error dimension were found to be .843, .778 and .634, respectively.

4. When the Cronbach Alpha Reliability Coefficients for the Error Management Culture Scale are examined, the reliability coefficient for the Error Sharing sub-dimension is .814, the reliability coefficient for the Error Competence sub-dimension is .838, the reliability coefficient for the Error Avoidance sub-dimension is .796, and the reliability coefficient for the Error Response sub-dimension is .784. and the total item reliability coefficient of the Error Management Culture Scale was found to be .846. When the results obtained are examined, it is seen that the Error Management Culture Scale is reliable. It was concluded that the Error Management Culture Scale, which was created as a result of all the data obtained, is a valid and reliable scale.

Data Analysis

SPSS 21 and AMOS 18 were used to analyze the data. Structural equation analysis (Byrne, 2013) was used because there was a need for a statistical technique that simultaneously tested two or more relationships that allowed the relationship between more than one variable to be permanent or separated. In addition, correlation analysis was used to examine the relationship between two or more variables without interfering with these variables in any way (Büyüköztürk, et al., 2012, p.226).

Normality test was applied primarily in the study. In addition, the structural equation model has outliers, normality, multicollinearity problem and sample size prerequisites: Stage 1: Outliers in the data set (based on the absolute values of -3 and 3 according to z scores) were examined and 15 data determined to be outliers were removed. Then outliers were eliminated. Stage 2: The normality of the data was examined. In this study, Skewness and Kurtosis values were examined to look at the normality values. Since the Skewness and Kurtosis values were between ±2 values, it was determined that the data showed normal distribution (George & Mallery, 2016). Stage 3: The problem of multicollinearity is examined. The fact that the correlation between the independent variables in the model is high (greater than 0.80) is an indicator of the multicollinearity problem (İslamoğlu, 2011). The correlation matrix between work engagement and error management culture was examined. The values for the data obtained are given in Table 1.

Table 1. Correlation matrix showing the relationship between error management culture and work engagement

Variables	A	A1	A2	A3	B	B1	B2	B3	B4
A. Work Engagement	1								
A1.Vigor	.911**	1							
A2.Devotion	.895**	.733**	1						
A3. Absorption	.902**	.716**	.721**	1					
B. Error Management Culture	.371**	.350**	.321**	.331**	1				
B1. Error Sharing	.389**	.364**	.344**	.343**	.738**				
B2. Error Competence	.388**	.361**	.331**	.357**	.742**	.685**	1		
B3. Error Avoidance	.124**	.123**	.113**	.099**	.644**	.129**	.155**	1	
B4. Response to Error	.093*	.091*	.071	.088*	.645**	.129**	.133**	.616**	1

Correlation coefficients between independent variables were found to be the lowest .071 and the highest .389. In this study, it was observed that there was no multicollinearity problem between the variables. In Stage 4: It was examined whether the sample size was sufficient or not. Considering the information in the literature, it can be said that the sample of this research, which has 71 items, is large enough, consisting of 747 data (Bayram, 2013; Kline,2011).

RESULTS

Findings and Comments on the First Sub-Aim of the Research

Correlation analysis was conducted for the question, which is the second sub-objective of the research, "According to teachers' opinions, is there a significant relationship between error management culture and work engagement behaviors and organizational creativity?". The correlation matrix showing the relationship between error management culture and its sub-dimensions and organizational creativity and sub-dimensions is given in Table 2.

Table 2. Correlation matrix showing the relationship between error management culture and organizational creativity

Variables	A	A1	A2	A3	A4	B	B1	B2	B3
A. Error Management Culture	1								
A1. Error Sharing	.738**	1							
A2. Error Competence	.742**	.685**	1						
A3. Error Avoidance	.644**	.129**	.155**	1					
A4. Response to Error	.645**	.129**	.133**	.616**	1				
B. Organizational Creativity	.452**	.527**	.481**	.076*	.114**	1			
B1. İndividual Creativity	.324**	.386**	.351**	.049	.071	.844**	1		
B2. Managerial Creativity	.406**	.479**	.430**	.063	.103**	.876**	.574**	1	
B3. Social Creativity	.440**	.497**	.462**	.088*	.124**	.833**	.515**	.680**	1

There is a positive, moderate statistically significant relationship between error management culture and organizational creativity (r:0.452, p<0.01). There was a positive, highly significant relationship between error management culture and error sharing (r:0.738, p<0.01) and error competencies (r:0.742, p<0.01), which are sub-dimensions of error management culture. There is a positive, moderately statistically significant relationship between error management culture and error avoidance (r:0.644, p<0.01) and response to error (r:0.645, p<0.01). There is a weak and positive correlation between the error management culture and the sub-dimensions of organizational creativity behaviors of individual creativity (r:0.324, p<0.01), managerial creativity (r:0.406, p<0.01) and social creativity (r:0.440, p<0.01).

While there is a moderately significant positive correlation between error sharing and error competence (r:0.685, p<0.01) sub-dimensions of error management culture, there is a statistically significant correlation between error avoidance (r:0.129, p<0.01) and error response (r:0.129, p <0.01) in the positive direction but at a very weak level. In addition, a positive and moderate relationship is observed between sharing of error and organizational creativity (r:0.527, p<0.01), while a weak positive relationship is observed between individual creativity (r:0.386, p<0.01) sub-dimension of organizational creativity, and managerial creativity (p<0.01). A positive and close to moderate relationship is observed between managerial creativity (r:0.479, p<0.01) and social creativity (r:0.497, p<0.01).

There is a very weak, positive and significant relationship between the competence of the error management culture sub-dimension, error avoidance (r:0.155, p<0.01) and response to error (r:0.133, p<0.01). In addition, there is a positive and close to moderate correlation between error competence and organizational creativity (r:0.481, p<0.01), which are sub-dimensions of

organizational creativity, managerial creativity (r:0.430, p<0.01) and social creativity (r:0.462, p<0.01). There is a weak and positive correlation between error competence and individual creativity (r:0.351, p<0.01).

There is a positive and moderately significant relationship between error avoidance, which is a sub-dimension of error management culture, and response to error (r:0.616, p<0.01). In addition, although there is a positive relationship between organizational creativity (r:0.076, p<0.05) and social creativity, which is a sub-dimension of organizational creativity (r:0.088, p<0.05), there is a very weak relationship. There was no statistically significant relationship between error avoidance and individual creativity and managerial creativity.

While there is a very weak positive relationship between the sub-dimension of error management culture and organizational creativity (r:0.114, p<0.01), managerial creativity (r:0.103, p<0.01) and social creativity (r:0.124, p<0.01), which are the sub-dimensions of organizational creativity, there was no statistically significant relationship with individual creativity.

There is a positive and highly significant relationship between organizational creativity and individual creativity (r:0.844, p<0.01), managerial creativity (r:0.876, p<0.01) and social creativity (r:0.833, p<0.01), which are the sub-dimensions of organizational creativity. In addition, there is a moderate positive relationship between individual creativity and managerial creativity (r:0.574, p<0.01) and social creativity (r:0.515, p<0.01), and a moderate relationship between managerial creativity and social creativity (r:0.680, p<0.01).

According to teachers' opinions, correlation analysis was conducted to reveal the relationship between work engagement and organizational creativity. The correlation matrix showing the relationship between work engagement and its sub-dimensions and organizational creativity and sub-dimensions is given in Table 3.

Table 3. Correlation matrix showing the relationship between work engagement and organizational creativity

Variables	A	A1	A2	A3	B	B1	B2	B3
A. Work Engagement	1							
A1.Vigor	.911**	1						
A2.Devotion	.895**	.733**	1					
A3. Absorption	.902**	.716**	.721**	1				
B. Organizational Creativity	.466**	.424**	.412**	.424**	1			
B1. İndividual Creativity	.514**	.478**	.424**	.486**	.844**	1		
B2. Managerial Creativity	.350**	.302**	.339**	.310**	.876**	.574**	1	
B3. Social Creativity	.295**	.275**	.268**	.257**	.833**	.515**	.680**	1

There is a statistically significant relationship between the scale of work engagement and the scale of organizational creativity in the positive direction and close to the middle level (r:0.466, p<0.01). There is a positive and very highly significant relationship between work engagement and vigor (r:0.911, p<0.01), dedication (r:0.895, p<0.01) and absorption (r:0.902, p<0.01), which are the sub-dimensions of work engagement. There is a positive and moderate relationship between work engagement and individual creativity(r:0.514, p<0.01), which are the sub-dimensions of organizational creativity, and a weak and positive relationship between managerial creativity (r:0.350, p<0.01) and social creativity (r:0.295, p<0.01).

There is a positive and highly significant relationship between the vigor dimension of work engagement and the dimensions of dedication (r:0.733, p<0.01) and absorption (r:0.716, p<0.01). In addition, there is a positive and close to moderate relationship between the vigor dimension of work engagement and the organizational creativity scale (r:0.424, p<0.01) and the individual creativity dimensions of the organizational creativity scale (r:0.478, p<0.01) . A positive and weak relationship was observed between the vigor dimension of work engagement and the managerial (r:0.302, p<0.01) and social creativity (r:0.275, p<0.01) which are the sub-dimensions of organizational creativity.

There was a high and positive significant relationship between the commitment sub-dimension of work engagement and absorption (r:0.721, p<0.01) .In addition, there is a weak and positive relationship between the commitment sub-dimension of work engagement (r:0.412, p<0.01) and the organizational creativity scale and the individual creativity (r:0.424, p<0.01), which are the sub-dimensions of organizational creativity. There is a positive and weak relationship between the commitment sub-dimension of work engagement and the managerial (r:0.339, p<0.01) and social creativity (r:0.268, p<0.01), which are the sub-dimensions of organizational creativity.

There is a moderate and positive significant relationship between absorption sub-dimension of work engagement and organizational creativity scale (r:0.424, p<0.01) and individual creativity (r:0.486, p<0.01), which are the sub-dimension of organizational creativity. There is a positive and weak relationship between the absorption sub-dimension of work engagement and the managerial (r:0.310, p<0.01) and social creativity (r:0.257, p<0.01), which are the sub-dimensions of organizational creativity.

Findings and Comments on the Second Sub-Aim of the Study

In this section, findings and comments regarding the second sub-purpose of the study are given. In the first stage, a structural equation model was created in line with the first hypothesis stated below. Figure 1 gives information about the model.

H$_1$: Error management culture and work engagement are significant predictors of organizational creativity.
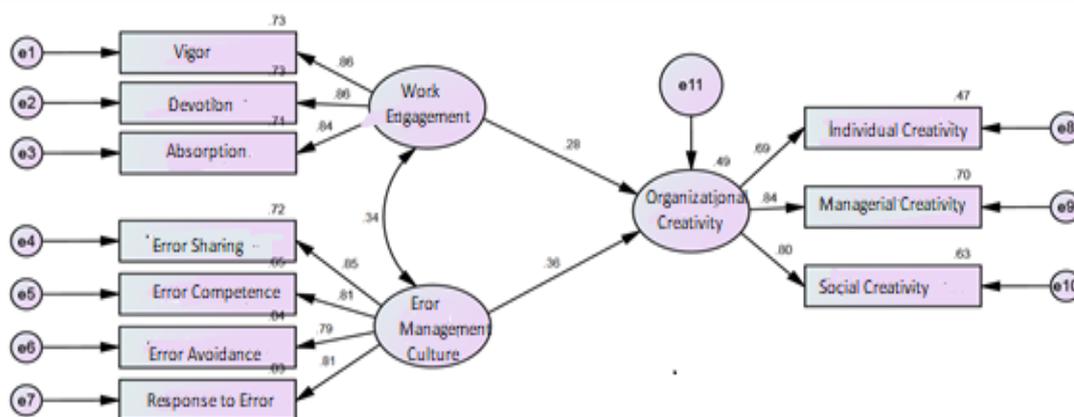

Figure 1. The structural equation model between the scales of error management culture, attractiveness, and organizational creativity

In the light of the information above, the fit of each scale used in the research to the model was tested by performing confirmatory factor analysis tests, it was observed that the index values of the measurement models of each scale had acceptable fit values, and detailed information about the fit indices was given in the method section of the research. In accordance with the structural model created, the model was tested in order to reveal the predictors of work engagement and error management culture on organizational creativity. The fit index values obtained as a result of testing the structural model are given in Table 4.

Table 4. Structural equation model fit index values

Notation	Perfect fit values	Recommended value	Calculated value	Result
X^2/sd	$0 \leq X^2/sd \leq 3$	$3 \leq X^2/sd \leq 5$	4.740	Recommended fit
GFI	$.95 \leq GFI \leq 1.00$	$.90 \leq GFI \leq 95$	.963	Perfect fit
AGFI	$.90 \leq AGFI \leq 1.00$	$.85 \leq AGFI \leq .90$	.934	Perfect fit
CFI	$.97 \leq CFI \leq 1.00$	$.95 \leq CFI \leq .97$	.967	Recommended fit
NFI	$.95 \leq NFI \leq 1.00$	$.90 \leq NFI \leq .95$	.958	Perfect fit
IFI	$.95 \leq IFI \leq 1.00$	$.90 \leq IFI \leq .95$	.968	Perfect fit
RMSEA	$.00 \leq RMSEA \leq .05$	$.05 \leq RMSEA \leq .08$	.071	Recommended fit
SRMR	$.00 \leq SRMR \leq .05$	$.05 \leq SRMR \leq .10$	.045	Perfect fit

For the structural equation model, the structural model created after the measurement models was tested. The t values of the structural model and the fit index values of the model were examined for the statistical significance of each path that emerged in the path analysis. When Table 37 is examined for the fit index values of the structural model ($\chi2$/sd: 4.740, GFI: .963, AGFI: .934, CFI: .967, NFI: .958, IFI: .968 ve RMSEA: . 071), it is observed that the fit index values of the structural model are mostly at the level of perfect fit, and some index values are at an acceptable level. The model created for the structural equation is given in Figure 2.

CMIN=146.932; DF=31; p=.000;CMIN/DF=4.740; GFI=.963; CFI;=.967; RMSEA=.071

Figure 2. Structural equation model diagram created between scales and test results

When the results of the diagram regarding the structural model were examined, it was observed that the path coefficient between work engagement and organizational creativity was 0.284, and the path coefficient between error management culture and organizational creativity was 0.361. It was observed that all path coefficients related to the structural model were statistically significant. In addition, it is observed that work engagement explains 0.080 variance in organizational creativity and error management culture explains 0.13 variance in organizational creativity. Standardized regression values, t values and explanatory variances for the dimensions of the structural model are given in Table 5.

Table 5. Structural equation model standardized regression coefficients, t-values and explained variances

	β	S.E.	t	Explained Variances	P
İndividual Creativity	1				
Managerial Creativity	.841	.077	18.662	.707	<0.001
Social Creativity	.804	.071	18.237	.646	<0.001
Absorption	1				
Devotion	.857	.041	26.839	.734	<0.001
Vigor	.864	.041	26.794	.746	<0.001
Error Competence	1				
Error Sharing	.848	.061	19.015	.719	<0.001
Error Avoidance	.791	.072	14.102	.516	<0.001
Response to Error	.813	.079	18.684	.660	<0.001

In addition to the fit index values, t values were also examined for the statistical significance of the structural model for each path that emerges in the path analysis. Accordingly, it was determined that the t values of the model created were between 14.102 and 26,839 and all the paths created in the model were statistically significant at the .001 level. All of the regression coefficients related to the structural model created to examine the relationships between work engagement and error management culture and organizational creativity scales were found to be statistically significant. The standardized regression coefficients of the observed variables of the constructed structural model were observed between .791 and .864. It was observed that the variances explained by the observed variables belonged to the vigor sub-dimension with the highest .746 and the individual creativity sub-dimension with the lowest .516. Standardized regression values, t values and explanatory variances for the overall scales of the structural model are given in Table 6.

Table 6. Structural equation model path coefficients table

Structural Equation Model			β₁	S.E.	t	Explained Variances	P
Organizational Creativity	<---	Work Engagement	.284*	0.032	5.237	.080	<0.001
Organizational Creativity	<---	Error Management	.361*	0.042	10.244	.130	<0.001

Work engagement and error management culture predicted organizational creativity in a statistically significant way. There is a weak positive correlation between work engagement and organizational creativity (β1:0.284, p<0.001), and there is a weak positive correlation (β1:0.361, p<0.001) between the error management culture scale and the organizational creativity scale. Considering all the findings regarding the structural model, it is observed that the regression coefficient between work engagement and organizational creativity was .284, and the regression coefficient between error management culture and organizational creativity was .361. Accordingly, it was determined that work engagement and error management culture scales predicted organizational creativity positively and weakly. Thus, hypothesis 1 was accepted. In addition, work engagement explains 8% of organizational creativity, and error management culture explains 13% of organizational creativity.

CONCLUSION AND DISCUSSION

Results and Discussion on the First Sub-Objective

It was concluded that there is a positive, significant and close to moderate level relationship between error management culture and organizational creativity (r:0.452, p<0.01). When the relationship between the error management culture and the sub-dimensions of organizational creativity is examined, the highest level of relationship is between the error management culture and the social creativity sub-dimension of organizational creativity (r:0.440, p<0.01) and the weakest relationship was found between the error management culture and the individual creativity (r:0.324, p<0.01) sub-dimension of organizational creativity. According to the relevant results, as the culture for error management in schools increases, the behaviors of teachers to take risks, being curious about new experiences and experiences, developing themselves by constantly learning, and producing original products also increase. When the literature is examined, reasons such as not being able to balance pressure and discipline, being exposed to excessive pressure or, on the contrary, not having discipline (Yıldırım, 1998), fear of being ridiculed (Temizkalp, 2010), striving to be perfect and the desire to do serious work (Amabile, 1997) hinders organizational creativity. In fact, the same reasons also affect the management of errors. Because Helmreich (2004) emphasized that in order to be successful in creating a culture of error management, it is necessary to establish trust between the employee and the management, and to create an understanding policy against mistakes. Employees who are exposed to excessive pressure cannot use different ways in order not to make mistakes, and cannot share their mistakes for fear of being mocked. As it is seen, the result of the research that the existence of the created error management culture will increase the existence of organizational creativity is supported by the literature. Behaviors that affect the culture of error management also affect organizational creativity.

When the relationship between work engagement and organizational creativity was examined, it was found that there was a positive, significant and close to moderate relationship (r=0.466, p<0.01). Between work engagement and organizational creativity sub-dimensions, the highest level of relationship was between work engagement and organizational creativity's individual creativity sub-dimension (r:0.560, p<0.01) and the weakest relationship was found between work engagement and social creativity (r:0.295, p<0.01) sub-dimension of organizational creativity. According to the related results, as the energy and enthusiasm of the teachers towards their work, the ideas that their work is meaningful, and their focusing behaviors by integrating themselves with their work increase, they see different points of relationship between events and phenomena, act flexible towards new ideas, transform competitiveness and opportunities into concrete benefits. Individual creativity behaviors increase as well. It can be said that as work engagement increases, creativity behaviors of school management and other teachers also increase. In another study conducted between 2008 and 2009, it was concluded that there is a serious relationship between work engagement and the organizational performance and productivity of those who seek excitement, innovation and difference during work (Haid and Sims 2009, cited in Bostancı and Ekiyor 2015, p. 40). In another study, a significant relationship was found between work engagement and managerial creativity (Durgut & Günay, 2014). The components of work engagement are participation, compromise, passion, willingness, ability to concentrate, effort, energy and focus (Schaufeli, 2012, p.3). The first step of creativity is absorption and willingness on the subject (Yıldırım, 1998). For this reason, the knowledge of the literature that the creativity of the person increases as the energy towards his work increases supports the result of the research.

Results and Discussion Regarding the Second Sub-Objective

When the structural equation analysis results, which were conducted to reveal the extent to which error management culture and work engagement predict organizational creativity, the theoretical model was first tested, and almost all of the index values (χ^2/sd: 4.740, GFI:.963, AGFI:.934, CFI: .967, NFI: .958, IFI: .968: RMSEA:.071) showed excellent fit. According to the regression coefficients (between .791 and .864), the relationships between the scales and sub-dimensions in the model were found to be positively significant. In the model created to examine the predictive effect of error management culture and work engagement on organizational creativity, it was seen that there was a weak positive relationship between error management culture and organizational creativity (β_1:0.361, p<0.001), and a weak positive relationship between work engagement and organizational creativity (β_1:0.284, p<0.001). Error management culture explains 13% of organizational creativity, and work engagement explains 8% of organizational creativity. According to the related result, it can be said that organizational creativity in schools will undergo a more positive change as the culture formed for the management of mistakes such as discussing and sharing mistakes, taking responsibility for mistakes by intervening in a timely manner, not being afraid of the reactions to be given, seeing mistakes as a learning tool rather than a punishment tool. In addition, it can be said that teachers' exhibiting behaviors of being attracted to work such as reflecting their energies on their work, thinking that their work serves the purpose, and concentrating on their work in a way that does not understand how the time passes, will make a positive contribution to organizational creativity in the schools where they work.

SUGGESTIONS

1. It has been concluded that error management culture and work engagement are significant predictors of organizational creativity. In schools, practices that support teachers' engagement to work should be included. In addition, in-service trainings and informative trainings on managing errors should be given to administrators and teachers.

2. Decisions taken in MoNE can sometimes negatively affect teachers' work engagement and creativity. Before making a decision, the Ministry of National Education can get the opinions of teachers through education portals such as EBA (Education Informatics Network), MEBBİS (Ministry of National Education Information Systems) etc.

3. In this study, the effects of error management culture and work engagement on organizational creativity were examined. It can also be examined which variables have not been studied in the field of education and which variables are effective on the error management culture.

4. The research was carried out with teachers working in official primary and secondary schools. Similar studies can be applied at different education levels (high school and university) and private schools. This study, carried out in the city center, can also be applied in rural areas, which are thought to differ in every aspect.

Declaration of conflicting interests

Funding

Statements of publication ethics

We hereby declare that the study has no unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

The study was conducted and reported with equal collaboration of the researchers.

Ethics Committee Approval Information

It was decided that this study complied with the ethical rules of Education and Humanities due to the meeting dated 21.10.2019 by Firat University Ethics Committee from the Social and Humanities

REFERENCES

Amabile, T. M. (1997). Movivating creativity in organizations: on doing what you love and loving what you do. *California Manegement Review, 40* (1), 39-58.

Bal, E.A. (2009). *Bir pozitif psikoloji kavramı olarak işe gönülden adanma (work engagement) ve insan kaynakları açısından önemi.* 17. Ulusal Yönetim ve Organizasyon Kongresi. s.546-552

Balay, R. (2010).Öğretim elemanlarının örgütsel yaratıcılık algıları. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi, 43*(1), 41-78.

Baumgartner, H. & Homburg, C. (1996). Applications of structural equation modeling in marketing and consumer research: a review. *International Journal of Research in Marketing, 13*(2), 139-161.

Bayram, N. (2013). *Yapısal eşitlik modellemesine giriş AMOS uygulamaları*. Ezgi Kitabevi.

Byrne, B. M. (2013). *Structural equation modeling with Mplus: Basic concepts, applications and programming*. Routledge Press.

Bentler, P.M. (1980). Multivariate analysis with latent variables: Causal modeling. *Annual Review of Psychology*, *31*(1), 419-456.

Bostancı, H. & Ekiyor, A. (2015). Çalışanların işe adanmasının örgüt içi girişimciliğe etkisinin incelenmesi: Sağlık sektöründe bir uygulama. *Uluslararası Sağlık Yönetimi Ve Stratejileri Araştırma Dergisi*, *1*(1), 1.

Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. Guilford Press.

Büyüköztürk, Ş. (2010). *Sosyal bilimler için veri analizi el kitabı*. Pegem Akademi Yayınları.

Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, Ö. E., Karadeniz, Ş. & Demirel, F. (2012). *Bilimsel araştırma yöntemleri*. Pegem Akademi.

Carmeli, A., Gittell J. H., (2009). High-quality relationships, psychological safety, and learning from failures in work organizations. *Journal of Organizational Behavior*, *30*(6), 709-729.

Chang, W, Chiang, Z., H. (2007). A study on how toelevating organization a lcreativity of designorganization. *International Association of Societies of Design Research*. The Hong Kong Polytechnic University, Hong Kong.

Creswell, J. W. (2012). *Educational research: planning, conducting, and evaluating.* (4th ed.). Pearson Education.

Çakıl, E. (2011). *Üniversite hastanesinde çalışan hemşire ve asistanlarda mobbing'in ise gönülden adanma üzerine etkisi* (Yayımlanmamış Yüksek Lisans Tezi). Zonguldak Karaelmas Üniversitesi Sosyal Bilimler Enstitüsü, Zonguldak.

Çekmecelioğlu, H.G. (2002). *Yaratıcı birey teorisi ve örgütsel yaratıcılığı etkileyen genel özellikler*. 1. Bilgi Ekonomi ve Yönetim Kongresi.

Durgut, A. İ. & Günay, G. Y. (2014). Etik liderlik, işe adanmışlık ve yönetsel yaratıcılık arasındaki ilişki: yapı malzemeleri sektöründe bir uygulama. *Journal of Organizational Behavior Review, 2*(2), 149-171

Ertürk, S. (1992)*. Eğitimde program geliştirme*. Hacettepe Üniversitesi Basımevi.

Edmondson, A. C. (2004). Learning from mistakes is easier said than done: group and organizational influences on the detection and correction of human error. *The Journal of Applied Behavioral Science*, *40*(1), 66.

George, D. & Mallery, P. (2016). *IBM SPSS statistics 23 step by step: A simple guide and reference*. Routledge.

Goffman, E. (1959). *The presentation of self in everyday life, doubleday*. Garden City.

Gronewold, U. & Donle, M. (2011). Organizational error climate and auditors. predispositions toward handling errors. *Behavioral Research in Accounting* ,*23*(2), 69–92.

Goodman, P. S., Ramanujam, R., Carroll, J. S., Edmondson, A. C., Hofmann, D., A., Sutcliffe, K. M. (2011). Organizational errors: Directions for future research*. Research in Organizational Behavior*, *31*,151–176.

Guchait, P., Paşamehmetoğlu, A. & Lanza-Abbott, J. A. (2015). The importance of error management culture in organizations: The impact on employee helping behaviors during service failures and recoveries in restaurants. *Journal of Human Resources in Hospitality & Tourism*, *14*, 45–67.

Helmreich, R. L. (1998). Error Management as Organizational Strategy. In Proceedings of the IATA Human Factors Seminar, 1-7.

Helmreich, R. L. & Davies, J., M. (2004). Culture, threat, and error: lessons from aviation. *Canadian Journal of Anesthesia, 51*,1-4.

İsmailoğlu, A., H. (2011). *Sosyal bilimlerde araştırma yöntemleri.* (2.Baskı). Beta Yayınları.

Kahn, W. A. (1990*).* Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, *33*, 694.

Keith, N., & Frese, M. (2011). *Enhancing firm performance and innovativeness through error management culture. The Handbook of Organizational Culture and Climate*. SAGE Publications.

Kline, R. B. (2011). *Principles and practice of structural equation modeling*. (Third Ed.). The Guilford Press.

Köse, A. (2015). *İşe Angaje Olma İle Örgütsel Destek Algısı ve Örgüt İklimi Arasındaki İlişki (Kahramanmaraş İli Örneği)* (Doktora Tezi). Kahramanmaraş Sütçü İmam Üniversitesi Sosyal Bilimler Enstitüsü, Kahramanmaraş.

Kurnaz, M. A., Yiğit, N. & Bayraktar, G. (2010). *Ortaöğretim Öğrencilerinin Fiziğe Karşı Tutumları: Yeni Fizik Öğretim Programına Yönelik Bir İnceleme*. II. Uluslararası Türkiye Eğ.

Küçüksayraç, M. (2013). *Ortaöğretim okul yöneticilerinin öğretmen motivasyonuna etkisi* (*Y*üksek Lisans Tezi). Yeditepe Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.

Lawshe, C.H. (1975). A quantitative approach to content validity. *Personnel Psychology, 28,* 563–575.

Martins, E.C., Terblanche, F. (2003). Building organizational culture that stimulate screativity and innovation. *European Journal of Innovation Management*, *6*(1), 64-74.

Miles, M., B. & Huberman, AM. (1994). *Qualitative data analysis: a sourcebook for new methods*. Sage.

Rybowiak, V., Garst, H., Frese, M., & Batinic, B. (1999). Error orientation questionnaire (EOQ): Reliability, validity, and different language equivalence. *Journal of Organizational Behavior*, *20*(4), 527-547.

Schaufeli, W. B., Salanova, M., González-Romá, V. & Bakker, A. B. (2002). The measurement of engagement and burnout: A confirmative analytic approach. *Journal of Happiness Studies, 3,*71–92.

Schaufeli, W. B. ve Bakker, A. B. (2004). Job demands, job resources and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, *25*, 293-31

Schermelleh-Engel, K., Moosbrugger, H. ve Müller, H. (2003). Evaluatingthe fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online*, *8*(2), 23-74.

Sungur, N. (1997). *Yaratıcı düşünce.* Evrim Yay.

Şişman, M. (2002). *Örgüt kültürü.* Anadolu Üniversitesi Yayınları.

Tabachnick, B., G. & Fidell, L., S. (2007). *Using multivariatestatistics* (5th Edition). Pearson Education.

Tavşancıl, E. (2014). *Tutumların ölçülmesi ve SPSS ile veri analizi.* (5.Baskı). Nobel Akademik Yayıncılık.

TDK Güncel Türkçe Sözlük. (2020, 16 Nisan). *Hata* https://sozluk.gov.tr/?kelime=hata

Turgut, T. (2013). Başarı hedef yönelimleri ve iş özelliklerinin işe cezbolma üzerindeki katkıları. *İşletme Dergisi*, *42*(1):1-25.

Van Dyck, C., Frese, M., Baer, M., & Sonnentag, S. (2005). Organizational error management culture and its impact on performance: A two-study replication. *Journal of Applied Psychology*, *90*(6), 1228-1240.

Veneziano, L, Hooper, J. A. (1997). Method for quantifying content validity of health-related questionnaires. *Am J Health Behav*, *21*(1):67-70.

Widmann, G., Stoffner, R. & Bale, R., (2009). Errors and error management in imageguided craniomaxillofacial surgery. *Oral Radiology, and Endodontology*. *107*(5), 701-715.

Wollard, K. K. & Shuck, B. (2011). Antecedents to employee engagement a structured review of the literature. *Advances in Developing Human Resources, 13*(4), 429-446.

Yalazan, A. (2006). *Genel liselerde okul kültürü oluşturmada okul yöneticilerinin rollerinin değerlendirilmesi* (Yayımlanmamış Yüksek Lisan Tezi). Gazi Üniversitesi Sosyal Bilimler Enstitüsü, Ankara.

Yıldırım, E. (2007). Bilgi çağında yaratıcılığın ve yaratıcılığı yönetmenin önemi. *Selçuk Üniversitesi İ.İ.B.F Dergisi, 12*(9), 109-120.

Yıldırım, R. (1998). *Yaratıcılık ve yenilik.* Sistem Yayıncılık.

Yüceler, A. (2009). Örgütsel bağlılık ve örgüt iklimi ilişkisi teorik ve uygulamalı bir çalışma. *Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 16,*22.