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Research Article

The Relationship between the Decision-Making Styles and Social Entrepreneurship of Science and Art Center Principals*

Bilim ve Sanat Merkezi Müdürlerinin Karar Verme Stilleri ve Sosyal Girişimcilikleri Arasındaki İlişki

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ABSTRACT

This study investigates the relationship between Science and Art Center principals' decision-making styles and social entrepreneurship. The study involved 281 center principals from Science and Art Centers across Türkiye. The study used a correlational research design, which is a quantitative research model. The Decision-Making Styles Scale and the Social Entrepreneurship Scale were used to collect data for this study. The data were analyzed using descriptive statistics and canonical correlation analysis. According to the survey, the center principals' social entrepreneurship was strong and scored highest in creativity. The canonical correlation analysis revealed that the center principals' decision-making styles explained 27% of the social entrepreneurship characteristics. Furthermore, principals preferred the rational decision-making style and made decisions in the avoidant decision-making style most of the time. According to the findings of the research, Science and Art Center principals have the necessary characteristics for success in social entrepreneurship. The decision-making styles of the center principals have an essential effect on their having these characteristics.

Keywords: Decision-making styles, social entrepreneurship, science and art center, principal, canonical correlation analysis.

ÖZ

Bu çalışmanın amacı Bilim ve Sanat Merkezi müdürlerinin karar verme stilleri ve sosyal girişimcilikleri arasındaki ilişkiyi incelemektir. Araştırmaya Türkiye genelinde bulunan Bilim ve Sanat Merkezlerinde görev yapan 281 merkez müdürü katılmıştır. Araştırma nicel araştırma modellerinden ilişkisel tarama deseninde yürütülmüştür. Araştırmanın verileri Karar Verme Stilleri Ölçeği ve Sosyal Girişimcilik Ölçeği ile toplanmıştır. Verilerin analizinde betimsel istatistiklerden ve kanonik korelasyon analizinden yararlanılmıştır. Araştırmanın bulgularına göre merkez müdürlerinin sosyal girişimcilik özelliklerinin yüksek düzeyde olduğu ve söz konusu özelliklerden en yüksek puana yaratıcılık boyutunda sahip oldukları tespit edilmiştir. Bunun yanı sıra müdürlerin çoğunlukla rasyonel karar verme stilini tercih ettikleri az da olsa kaçınan karar verme stilinde karar aldıkları saptanmıştır. Kanonik korelasyon analizinin sonuçları, merkez müdürlerinin karar verme stillerinin sosyal girişimcilik özelliklerinin %27'sini açıkladığını ortaya koymuştur. Bu bulgulara dayalı olarak Bilim ve Sanat Merkezi müdürlerinin sosyal girişimcilik

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faaliyetlerinde başarı getirecek özelliklere sahip oldukları sonucuna ulaşılmıştır. Merkez müdürlerinin bu özelliklere sahip olmalarında karar verme stillerinin de önemli bir etkiye sahip olduğu tespit edilmistir.

Anahtar kelimeler: Karar verme stilleri, sosyal girişimcilik, bilim ve sanat merkezi, müdür, kanonik korelasyon analizi.

INTRODUCTION

Depending on the educational reforms of the twenty-first century, school principals may have to play a role other than traditional leadership in adapting educational institutions to change and achieving educational goals. Recent research has emphasized the role of school principals in entrepreneurship (Köybaşı & Dönmez, 2017; Öztürk, 2021; Pashiardis & Savvides, 2011), change leadership, and innovation (Balyer, 2012; Şahin, 2018; Pihie, Asimiran & Bagheri, 2014) and these roles contribute to the effectiveness and sustainability of schools. According to Pashiardis and Savvides (2011), principals' entrepreneurial characteristics influence their efforts to create learning environments that will increase students' learning capacities. Entrepreneurial school principals are forerunners in creating opportunities for the school to achieve its objectives and developing an innovative school culture by removing potential barriers to its development and effective maintenance (Korkmaz, 2006). Furthermore, effective school principals' entrepreneurial attitudes lead them to create a shared vision with stakeholders inside and outside the school (Hallinger & Murphy, 1986). As a result, schools become more sensitive to the demands and expectations of a changing society (Gümüşeli, 2001). In the context of these changing roles, expectations, and needs, the transformation of the leadership roles of school principals is critical, and they need to be entrepreneurial (Bayrak & Terzi, 2004; Çelikten, 2001).

Austin, Stevenson, and Wei-Skillern (2006) define social entrepreneurship, which does not have a definite consensus in its definitions in the literature (Nicholls, 2010), and explain two types of entrepreneurship. Entrepreneurship, in economic terms, is the identification, evaluation, and utilization of profitable opportunities (Austin et al., 2006). Social entrepreneurship is defined as a process that includes the innovative use of resources to realize social change, create social value, or satisfy social needs, in addition to its economic features (Austin et al., 2006; Thompson, 2002). The main difference between social and economic entrepreneurship is the individual's altruism. Social entrepreneurship, defined as an individual's expression of self-sacrifice, prioritizes social values over economic values (Mair & Marti, 2006; Tan, Williams, & Tan, 2005). Except for the emphasis on social value as opposed to profit, the definitions of economic and social entrepreneurship are very similar (Certo & Miller, 2008). This similarity is expressed by Dees (1998) as a *species* within the entrepreneurial *genus*. Furthermore, economic entrepreneurs can create social value while making a profit, and social entrepreneurs can make a profit while creating social value (Emerson & Twersky, 1996). Because schools are non-profit institutions, current research focuses on social entrepreneurship, which is thought to describe principal school entrepreneurship.

Social entrepreneurship; consists of three core characteristics: risk-taking, self-confidence, and creativity (Konaklı & Gögüş, 2013). Taking risks is taking the initiative when the manager's decision's success/failure or benefit/loss ratio is uncertain and unpredictable. Taking risks is an indicator of entrepreneurial attitudes. Risk minimization is one of the entrepreneur's goals (Fuller, Liu, Bajaba, Marler & Pratt, 2018) and is a characteristic that is frequently used to describe entrepreneurial behavior (Jain, Ali & Kamble, 2015). Self-confidence is the belief that individuals can act appropriately and effectively in any situation or problem. Self-confidence in entrepreneurship; is the perception of self-efficacy that individuals have the skills necessary for success in business activities (Robinson, Stimpson, Huefner, & Hunt, 1991). Creativity is the ability to produce new ways, new solutions, and new ideas for problems that do not have the right answer yet (Akdeniz, 2021). Creativity in entrepreneurship includes restructuring knowledge helpfully, seeing existing opportunities, or noticing opportunities (Hisrich & Peters, 2002;

Morrison & Johnston, 2003). In the literature, different classifications are used to describe social entrepreneurship. Demirel (2017) categorizes the characteristics of social entrepreneurs into three broad categories: personality, process, and structure. Personality characteristics are the entrepreneurial behavior structures of individuals who are creative, self-confident, focused on internal control, and strongly motivated to succeed. Process-related characteristics refer to the ability to create sustainable social changes with new capacities and resources; structural characteristics refer to dynamic elements that can see, evaluate, and, if Aside from ongoing efforts to conceptualize social entrepreneurship as different structures, some believe that entrepreneurial school principals play an important role in increasing teachers' self-efficacy and organizational commitment (Köybaşı, 2016). According to Titrek's (2019) research results, school principals have transformational leadership styles and social entrepreneurship characteristics. There is a significant relationship between school principals' entrepreneurial characteristics and school innovativeness, according to teachers' perceptions (Pihie et al., 2014). As per research on entrepreneurship in educational organizations (Köybaşı & Dönmez, 2017) school principals consider themselves competent in entrepreneurial characteristics. The outcomes of Hotal, Subramanian, and Narayanamurthy's (2017) meta-analysis show that the conceptualization of social entrepreneurship is still ongoing and that the concept is evolving in organizational terms (ethics, legitimacy). As a result, the studies in the literature can be classified as studies that describe social entrepreneurship from an individual standpoint. This study is expected to emphasize the managerial aspect of social entrepreneurship, with a focus on the relationship between social entrepreneurship and decision-making styles.

Because all other processes are affected by decision-making, it is one of the most effective processes in achieving the school's desired goal (Bush, 2007; Daft, 2015). Hoy and Miskel (2018) emphasize the importance of decision-making in educational administration and that schools, like all other official institutions, are essentially decision-making structures. According to Bursalıoğlu (2012), the quality of management processes is closely related to the decision-making process. When managers are evaluated based on the correctness and effectiveness of their decisions, the quality of those decisions is recognized as a critical criterion in determining their success (Lunenburg & Ornstein, 2022, p.150). In other words, every organization grows, succeeds, or fails due to management decisions (Daft, 2015). In this direction, managerial and individual success or failure results from decisions.

Decision-making is a design process that can be influenced by individuals' abilities to process information, knowledge, and individual characteristics (Kıranlı & Ilgan, 2007, p. 151). In addition, the decision-maker must know the opportunities, constraints, and potential for change (Özden, 1998). Knowing the interest groups/individuals related to the decisions to be taken, knowing the reactions of the relevant people/groups to similar decisions in the past, knowing the needs, psychological and social structures of the concerned, the manager's risk perception, self-confidence are the principles that should be considered to increase the quality of the decision (İmrek, 2003). In addition, subconsciousness, intuition, uncertainty, stress, personal habits, individual decision-making, power and authority, group and individual behavior, organizational balance, and action result in organizational decision-making; ethical rules, legal texts, and norms affect both individual and organizational decision-making (Byrd & Moore, 1982). At this point, the factors affecting the decision-making process can determine the decision-making styles of the individuals in the decision-making position.

The literature discusses decision-making styles using various approaches. There are four distinct decision-making approaches based on how an individual uses and analyzes information in a decision-making situation. These are the Harren approach, the Johnson approach, the Driver approach, and the Scott and Bruce approach. The Harren approach categorizes decision-making styles into three types: rational, which evaluates itself objectively; dependent, which has a limited perception of options, does not accept responsibility, and reflects it to others; and intuitive, which has emotional self-awareness. Driver approach—dynamic decision-making style—decision-

making styles are divided into four sub-styles based on their dimensions of using information and creating options: The Decisive Style, The Flexible Style, The Hierarchic Style, and The Integrative Style. Johnson's approach proposes four decision-making styles: spontaneous style, systematic style, external style, and interior style. The General Decision Making Style (GDMS) model developed by Scott and Bruce (1995) includes five cognitive styles. The rational style involves making a logical decision after thoroughly researching the options. The intuitive style bases decisions on hunches, emotions, and abstract influences rather than knowledge. The dependent style avoids decision-making behavior and avoids delaying decision-making, in which the individual reflects decision-making responsibility on others with the guidance and support of others. The avoidant style refers to decision-making without much thought, whereas the spontaneous style refers to impulsive decision-making behavior (Scott & Bruce, 1995). This study examined principals' decision-making styles using the Scott and Bruce (1995) approach, which is widely used, well-validated (Loo, 2000), and more comprehensive.

School principals' actions and behaviors are critical for initiating and successfully implementing organizational and educational changes (Hansson & Andersen, 2007). Mental models influence people's perceptions and actions (Senge, 2013, p. 16). At this point, decision-making styles, which can also be expressed as individuals' mental models for decision-making and taking, may be linked to creative problem-solving, self-confidence, and risk-taking behaviors. According to studies, the dependent style is associated with low self-regulation and self-esteem (Thunholm, 2004), and the rational style is associated with creativity (Özgenel, 2017). The avoidant style is associated with low self-efficacy perception (Öneren & Çiftçi, 2013) and a lack of control and self-confidence (Scott & Bruce, 1995). The decision-making styles of principals are discussed in this context. Social entrepreneurship is assumed to explain creativity, self-confidence, and risk-taking behaviors.

According to research, individuals' decision-making styles are primarily associated with organizational attitudes and behaviors. No study has been found in the literature investigating the relationships between administrators' decision-making styles and social entrepreneurship characteristics in educational organizations. As a result, there is a need for such a study. This study is expected to add to the literature by describing social entrepreneurship characteristics and decision-making styles, which are thought to be directly related to leadership, and analyzing the relationship between these variables. When studies on the decision-making styles of Turkish school administrators are examined, it is discovered that the administrators prefer a rational decision-making style (Acar, 2020; Kurban & Yaşar, 2015; Oğuz, 2009; Ölçüm, 2015; Özgenel, 2017; Yıldız, 2012). School administrators' decision-making styles are a significant predictor of problem-solving skills and creative thinking disposition (Özgenel, 2017), communication skills (Tekin, 2019), transformational leadership characteristics (Oğuz, 2009), psychological resilience (Yıldız, 2015), procrastination tendencies (Acar, 2020; Uğurlu, 2013) and well-being (Uslu, 2016). Science and Art Centers (SAC) are institutions that provide enriched and differentiated instruction and training opportunities to students with high abilities who are cognitively, socially, and emotionally different from their peers (Ministry of National Education [MoNE], 2020). Centers play critical roles in developing the high-level potential of gifted students in the context of equal opportunity. The decision-making styles of principals can influence the quality of education services provided in relevant institutions. Besides, principals' innovative and entrepreneurial characteristics, cognitive openness to change, power to create social change, and ambiguity-resisting attitudes can facilitate the creation of environments that will provide students with flexible development. The study's goal in this direction was to see if there was a relationship between SAC principals' decision-making styles and their social entrepreneurship. The following questions were looking for answers to:

1) How are decision-making styles and social entrepreneurial characteristics distributed according to SAC principals' views?

2) According to SAC principals' views, is there a significant relationship between decision-making styles and social entrepreneurship levels?

METHOD

2.1.Research Design

This quantitative study aims to investigate the relationships between the decision-making styles and social entrepreneurship of SAC principals. Principals' views were used to explain the relationships between decision-making styles and social entrepreneurship. Correlational studies should include at least two variables: dependent (intrinsic latent) and independent (external latent) variables. Canonical correlation analysis was used in this study to examine the relationships between two variables, one dependent (social entrepreneurship) and one independent (decision-making styles).

2.2.Study Group

The research population comprises principals in SACs affiliated with Türkiye's General Directorate of Special Education and Guidance Services. According to data obtained through a petition to the General Directorate of Special Education and Guidance Services, there will be 317 SACs in Türkiye by 2022, with 317 principals working in these centers. Instead of taking samples, the study aimed to reach the entire universe. After obtaining permission from the General Directorate of Special Education and Guidance Services, data collection tools were applied online to 281 SAC principals. Information about the participants is given in Table 1.

Table 1: Values Regarding Demographic Information of Center Principals' Participating in the Research (n=281)

Gender		Frequency *(f)*	Percentage *(%)*
Female		58	21
Male		223	79
	Total	281	100
Educational Status		Frequency *(f)*	Percentage *(%)*
Undergraduate		165	59
Postgraduate		116	41
	Total	281	100
Professional length of service		Frequency *(f)*	Percentage *(%)*
0-5 Years		251	89
6-10 Years		23	8
11-15 Years		7	3
	Total	281	100

Table 1 shows that the research included 58 (21%) female principals and 223 (79%) male principals. Regarding education level, 165 (59%) of center principals are undergraduates, while 116 (41%) hold postgraduate degrees. When examining the professional length of service of school principals, it is found that 251 (89%) have 0–5 years, 23 (8%) have 6–10 years, and 7 (3%) have 11–15 years.

2.3.Data Collection Tools

The Decision Making Styles Scale (DMSS), developed by Scott and Bruce (1995) and adapted to Turkish by Taşdelen (2002), was employed within the scope of the research to describe the decision-making styles of the center principals, and the Social Entrepreneurship Scale (SES), developed by Konaklı and Göğüş (2013), was used to determine their social entrepreneurship. A personal information form was also utilized to collect data on the variables of gender, professional length of service, and educational status of the center principals who participated in the study.

The Decision Making Styles Scale (DMSS) was adapted to Turkish by Taşdelen (2002). The scale, which initially had 25 items, was reduced to 24 by Taşdelen (2002) during the adoption stage to Turkish because the 12th item was overlapping. There are five styles on the scale. Rational style has five items (i.e., My decision-making requires careful thought); intuitive style has five items (i.e., I rely on my instincts when making a decision); dependent style has four items (i.e., I rarely make essential decisions without consulting other people); avoidant style has five items (i.e., I avoid making important decisions until the pressure is on); and spontaneous style has five items (i.e., I generally make snap decisions). High scores in each DMSS dimension imply the individual's preferred decision-making style.

On the other hand, the sample of this scale developed by Taşdelen (2002) consists of pre-service teachers. Since the current research will be conducted with a sample with different characteristics, it was decided to conduct a pilot application to determine the validity and reliability of the scale. For this purpose, a pre-application was made for a group of 123 school principals, different from the principals whose data would be collected in the main application. The validity and reliability of the scale were calculated by performing a confirmatory factor analysis on the obtained data. For factor analysis by Child (2006), five times the number of items is accepted as a sample size criterion. Accordingly, it can be said that this criterion was met with a sample of 123 people. The results of the first CFA analysis were performed to test the DMSS construct validity $\chi 2/sd= 4.4$; RMSEA = .034; AGFI= .90; CFI = .93; GFI = .91; IFI =. 90) was calculated. $\chi 2$ /sd value less than 5 indicates that the model fits well (Kline, 2005). At the same time, when the fit indices are examined, they all are close to or above .90, indicating a good or acceptable fit (Şimşek, 2007). Alpha coefficients obtained in the reliability analysis were .83, 80 for the rational style, .79 for the dependent style, .82 for the avoidant style, and .80 for the spontaneous style. Considering that for a scale to be considered reliable, the Cronbach Alpha coefficient should be .70 or higher (Büyüköztürk, 2009), it was decided that the scale to be used was reliable.

The reliability and validity values of the DMSS were retested on the data collected within the scope of the current study. CFA results with final data to confirm the five-factor structure of the DMSS revealed that the five-factor model's fit indices were acceptable ($\chi 2$ /sd = 2.3; RMSEA = .041; CFI = .97; GFI = .97; IFI = .96). The reliability coefficient was calculated as .76 for the whole scale, .75 for the rational style, .71 for the dependent style, .72 for the avoidant style, and .73 for the spontaneous style. According to these results, the data from DMSS are valid and reliable in this study.

The Social Entrepreneurship Scale (SES) was developed by Konaklı and Göğüş (2013). The scale has 21 items and three dimensions. Risk-taking has seven items (i.e., You cannot be successful unless you take risks), self-confidence has seven items (i.e., I influence people around me based on my thoughts), and creativity has seven items (i.e., I can do this job before I start doing it). High scores in each SES dimension indicate a high level of social entrepreneurship.

On the other hand, the sample of this scale developed by Konaklı & Göğüş (2013) consists of pre-service teachers. Since the current research will be conducted with a sample with different characteristics, it was decided to conduct a pilot application to determine the validity and reliability of the scale. For this purpose, a pre-application was made for a group of 123 school principals, different from the principals whose data would be collected in the main application.

The validity and reliability of the scale were calculated by performing a confirmatory factor analysis on the obtained data. For factor analysis by Child (2006), five times the number of items is accepted as a sample size criterion. Accordingly, this criterion was met with a sample of 123 people. The results of the first CFA analysis to test the SES construct validity were $\chi 2/sd= 3.9$; RMSEA = .034; AGFI= .90; CFI = .90; GFI = .91; IFI =. 91) was calculated as $\chi 2$ /sd value less than 5, indicating that the model fits well (Kline, 2005). At the same time, when the fit indices are examined, they all are close to or above .90, indicating a good or acceptable fit (Simsek, 2007). The alpha coefficients obtained in the reliability analysis were calculated as .79 for the whole scale, .75 for risk-taking, .77 for self-confidence, and .76 for creativity. Considering that for a scale to be considered reliable, the Cronbach Alpha coefficient should be .70 or higher (Büyüköztürk, 2009), it was decided that the scale to be used would be reliable.

The reliability and validity values of SES were retested on the data collected within the scope of the current study. CFA results with the final data to confirm the three-factor structure of SES showed that the fit indices of the three-factor model were at an acceptable level ($\chi 2$ /sd = 2.8; RMSEA = .042; CFI = .95; GFI = .97; IFI =.95) . The reliability coefficient calculated for the scale in this study was calculated as .74 for the whole scale, .73 for risk-taking, .75 for self-confidence and .72 for creativity. According to these results, the data obtained from SES are valid and reliable in this study.

2.4.Data Analysis

Data were analyzed using SPSS (version 28). The analyses were performed at 95% and 99% confidence intervals. The descriptive properties of the variables were examined using numerical values, percentages, means, and standard deviations. Relationships between variables were examined by canonical correlation analysis. Canonical correlation analysis is an extension of a multiple regression analysis. In the multiple regression analysis, the X variable group contains q, and the Y variable group contains p=1 variables. Canonical correlation analysis creates combinations between X and Y variables and calculates their correlation. In contrast, in the canonical correlation analysis, the X variable group contains q, and the Y variable group contains p ($p>1$) variables. This analysis investigates the correlation coefficients between the linear combinations of the variables in the X variable group and the linear combinations of the variables in the Y variable group. On the other hand, canonical correlation, unlike other correlation analysis techniques, examines the relationship between two variable sets (clusters) at the highest level when both the dependent variable and the number of independent variables are more significant than one (Kalaycı, 2014; Keskin & Özsoy, 2004; Tabachnick & Fidell, 2013). Because there is more than one dependent variable (taking risks, self-confidence, and creativity) in the current study, all variables are included in the analysis simultaneously. Canonical correlations are calculated this way, and new variables formed by linear combinations of variables are known as canonical variables or roots. The least number of canonical correlation pairs is obtained when the number of variables in the variable sets is not equal (Keskin & Özsoy, 2004). A maximum of three canonical variable pairs were obtained due to 5 variables in one of the variable sets used in the study and three variables in the other. The canonical correlations calculated between this variable pair are given in Table 3. Figure 1 depicts the analytical approach to the canonical correlation analysis that is considered within the scope of the research.

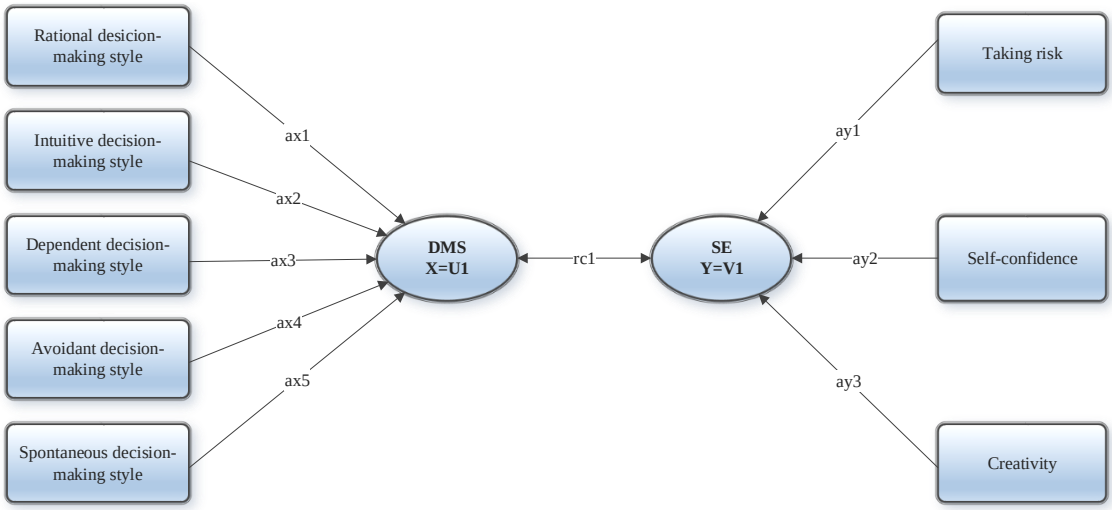

Figure 1. Analytical Approach to Canonical Correlation

According to Figure 1, ax1, ax2... represent the canonical loads of variable X, ay1, ay2...represent the canonical loads of variable Y, and rc1 represents the correlation between the variables.

2.4.1.Testing Assumptions

Before running canonical environment analysis, the data set should be evaluated regarding linearity, multiple normal distributions, and multiple cross-linkage measurements (Kalaycı, 2014). However, the effect of significantly affecting the measure between covariates should be determined before the analysis of outliers or extreme values in the data set, and necessary correction or elimination is required. Outliers in the data set can be determined by standardizing all scores. For this purpose, all scores in the distribution of research data were converted into z scores and standardized. Tabachnick and Fidell (2013) may state that standardized scores outside the mean of ±3.29 can be considered one-way extreme values. A threshold value of ±3.29 was adopted in the determination of the extreme values of the current vehicle. In line with this criterion, no data with a threshold value of z score ±3.29 were found. The skewness and kurtosis coefficients were calculated to determine the suitability of the data set for the normal distribution. The data skewness and kurtosis coefficients were within the recorded ranges for decision-making styles (-.43; -.38) and social entrepreneurship (-.44; -.52). The skewness value being between -1 and +1 indicates that the univariate normality assumption is met (Anderson, 2003). The multivariate normality analysis, which determines how the binary distribution between dimensions, was performed using the multivariate scatter diagram matrix, which included the research variables (Çokluk, Şekercioğlu & Büyüköztürk, 2018). It was concluded that the place and the data sets meet the multivariate normality assumption, except for any pattern in the graph. Correlation coefficients, variance ınflation factor (VIF), tolerance values (TV), and condition indices (CI) were calculated to determine whether there was a variable of multiple pair lengths among the independent variables. The fact that the correlation coefficients calculated for the relationships between the independent variables are less than .80 (see Table 2) indicates that there is no problem with multicollinearity (Büyüköztürk, 2009). Furthermore, it was determined that the independent variable's VIF value (1.34) was less than 10, the TV value (.54) was more significant than .10, and the CI value (9.26) was less than 30. The results show no multivariate effects among the independent variables in the data set.

RESULTS

Table 2 shows the mean, standard deviation, and correlation coefficient values for the DMS and SE sub-dimensions.

Table 2. Means, Standard Deviations and Correlations of SAC Principals' Scores for the Study Variables (n = 281)

Variables	Decision-making style				Social entrepreneurship			
	1	2	3	4	5	6	7	8
1.Rational DMS	-							
2.Intuitive DMS	.06	-						
3.Dependent DMS	.06	.24**	-					
4.Avoidant DMS	-.21**	.38**	.24**	-				
5.Spontaneos DMS	.07	.29**	.35**	.32**	-			
6.Taking Risk	.38**	.10	.02	-.16**	-.04	-		
7.Self- Confidence	.46**	.03	-.06	-.24**	-.10	.61**	-	
8.Cerativity	.34**	.08	-.01	-.12*	-.08	.53**	.59**	-
Mean	4.49	3.78	3.85	2.08	2.83	4.29	4.40	4.48
Stand.Dev.	.43	.56	.62	.75	.60	.42	.41	.42

**p<.01; *p<.05; DMS: Decision-Making Style

While SAC principals scored high in social entrepreneurship overall, SAC principals scored highest in rational style (M = 4.49; SD =.43) and lowest in avoidant style (M = 2.08; SD =.75). As shown in Table 2, the highest positive correlation coefficient between DMS and SE sub-dimensions was calculated between rational style and self-confidence (r=.46; p<.01). However, the lowest correlation between DMS and SE was found to be between avoidant style and creativity (r=-.12; p< .05). Moreover, the intuitive style and the avoidant style have the highest correlation coefficient among the decision-making styles (r= .38, p<.01).

In general, there are significant relationships between the rational style (**p<.01) and avoidant style (**p<.01,*p<.05) and social entrepreneurship.

3.1.Results of Canonical Correlation

Canonical correlation analysis yielded three canonical variable pairs and a canonical correlation coefficient. The canonical model was then tested for statistical significance using Wilks' Lambda (λ) statistic as a multivariate significance test. Table 3 summarizes the application results, canonical correlation coefficients, eigenvalues, Wilks' Lambda (λ), F values, degrees of freedom, and significance level.

Table 3. Correlation Coefficients, Wilks' Lambda and Significance Tests Related to Canonical Variables

Root	r	r^2	Eigenvalue	Wilks'Lambda	F	df	p
1	.518	.268	.367	.717	6.452	15.000	.000*
2	.120	.014	.015	.980	.706	8.000	.686
3	.077	.006	.006	.994	.549	3.000	.649

*p<.05

When F values are examined using Wilks' lambda values, Table 3 shows that the model calculated between the first canonical variable pair was significant (*Wilk's* λ= 0.717, F (15)

=6.452, p<.05), the second canonical variable pair (*Wilk's* λ = 0.980, F (8) = .706, p>.05) and the third canonical variable pair (*Wilk's* λ= 0.994, F (3) = .549, p>.05) were not statistically significant. According to Tabachnick and Fidell (2013), only statistically significant canonical functions should be interpreted in canonical correlation analysis. Table 3 shows that the first canonical variable pair has been examined, and the correlation set has a value of .518. The square of this value represents the amount of common variance explained by the dependent and independent variables. It was discovered in this context that the first canonical correlation set shared a 27% variance. In other words, the independent variable, the decision-making styles, explains the dependent variable social entrepreneurship, by 27%. On the other hand, standardized canonical coefficients were examined for the relationship between the variables in each set and their canonical variables. These coefficients represent the influence (contribution) of the original variables in a set on forming the canonical variable in a set (Sharma, 1996). In other words, these coefficients indicate the standard deviation of a one-unit change in the independent variable in the canonical variable. Table 4 shows the standardized correlation coefficients of the variables in the first (DMS) and second (SE) sets.

Table 4. Standardized Canonical Correlation Coefficients of Variables in the First and Second Sets Loading and Across Loading

Variables	Conanical Coffiendenct	rc1 Loading	Across Loading
First Set (DMS)			
Rational Desicion-Making Style	-.876	-.930	-.482
Intuitive Decision-Making Style	-.224	-.107	-.056
Dependent Decision-Making Style	.056	.079	.041
Avoidant Decision-Making Style	.278	.449	.233
Spontaneous Decision-Making Style	.190	.171	.088
Explained Variance (%)	%22		
Second Variables Set(SE)			
Taking risk	-.257	-.772	-.400
Self-Confidence	-.729	-.966	-.501
Creativity	-.139	-.705	-.365
Explained Variance (%)	%68		

Table 4 shows how to formulate the equation of U1 canonical variable obtained from standardized coefficients as equilibrium 1.

$$U1 = [(-.879 \times Rational\ DMS) + (-.224 \times Intuitive\ DMS) + (.056 \times Dependent\ DMS) + (.278 \times Avoidant\ DMS) + (.190 \times Spontaneous\ DMS)] \quad (eq1)$$

When the formula is examined, it is clear that Rational Decision Making Style contributes the most to the U1 canonical variable (-.876), while Dependent Decision Making Style has the least variable value (.056). When the standardized correlation coefficients of the variables in the second set are examined, the variable that contributes the most to the formation of the V1 canonical variable (SE) is discovered (-.729). However, the variable that remained at the lowest

level was creativity (-.139). The equation for the second canonical variable can be formulated as in equation 2.

$$V1 = [(-.257 \times Taking\ risk) + (-.729 \times Self\ confidence) + (-.139 \times Ceravity)] \quad (eq2)$$

The canonical loads for each set in canonical correlation analysis represent the variance explained by the variables. This value represents the average of the squares of the variable's canonical loads in the relevant set. Figure 2 shows a summary of the canonical loads and correlations between canonical variables.

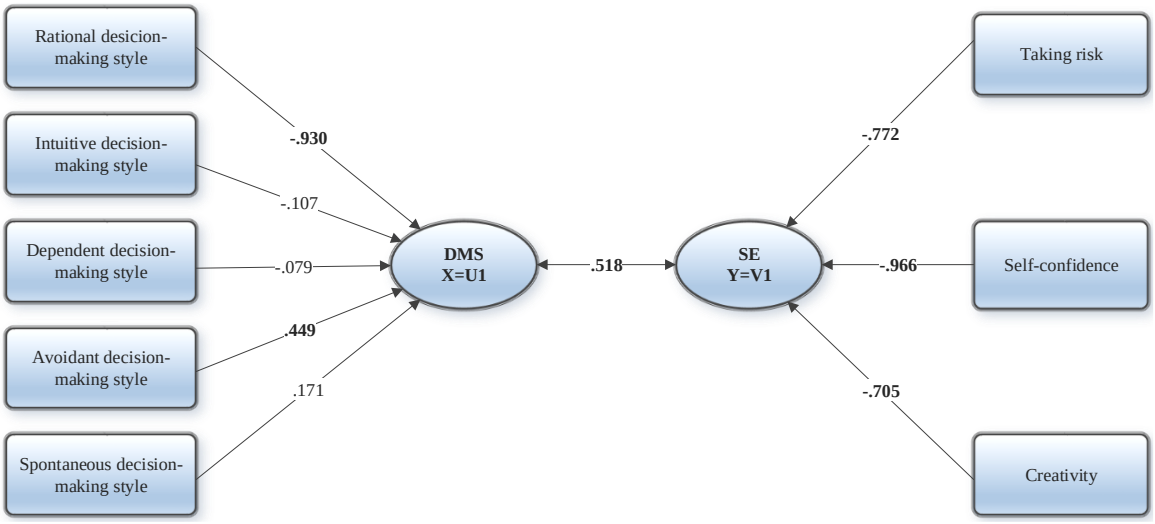

Figure 2. The Canonical Relationship Diagram between DMS and SE

When Figure 2 is examined, it is seen that there is an increase in the same direction between the first canonical variable DMS and SE (r_{c1}=.518, p<.05). In other words, there is an important and positive canonical relationship between decision-making style and social entrepreneurship. However, canonical loads; determines the representativeness of the variables in their canonical variable (Özdamar, 2010), and the representation power and size are calculated according to the absolute value of the values (Karagöz, 2016). Tabachnick and Fidell (2013) state that values greater than .30 indicates that the variable is a member of the relevant set. As a result, regarding canonical load values, the Rational Style (-.930) and Avoidant Style (.449) variables can be considered part of the first set. In terms of canonical load values, the variables taking risk (-.772), self-confidence (-.966), and creativity (-.705) can be evaluated as part of the second set. In this direction, it can be said that only the rational and avoidant styles are the determinants of social entrepreneurship characteristics. The rational style has this determining role more than the avoidant style. Risk-taking, self-confidence, and creativity of social entrepreneurship traits can be considered parts of the second set in the first canonical variable.

DISCUSSION AND CONCLUSION

The relationship between SAC principals' decision-making styles and their social entrepreneurship was investigated in this study. The study recruited 281 principals from SACs in Türkiye. Findings SAC principals were found to have relatively high levels of social entrepreneurship and the highest self-confidence and creativity scores. This finding is consistent with Titrek's (2019) research, which found that school principals have high levels of social entrepreneurship. Based on these findings, it is relatively apparent that SAC principals have higher social entrepreneurship abilities. The principals' high self-confidence and creativity skills

enable them to seize opportunities that improve educational environments and create social change. The high rate of involvement of the principals in the criteria indicating creativity could be interpreted as an indication that the principals have begun to shift away from a traditional management approach and are attempting to renew themselves in response to the rapidly changing world. Furthermore, the development and change activities demanded by the Ministry of National Education for schools (MoNE, 2021) may have encouraged principals to become social entrepreneurs. Self-assured, creative, and risk-taking principals are more likely to be positive role models for their teachers. Teachers who are creative, risk-taking, and self-assured teachers create rich learning environments tailored to students' unique characteristics and abilities. Thus, the principals' social entrepreneurial qualities will indirectly contribute to the students' high-level learning and success.

The study revealed that principals scored the highest in rational style. This finding is consistent with previous research findings about the decision-making styles of school principals (Acar, 2020; Çetinyol, 2019; Ölçüm, 2015; Özgenel, 2017; Yıldız, 2012). Those with a rational style are prudent individuals who double-check their sources of information for accuracy and make logical and systematic decisions based on knowledge (Scott & Bruce, 1995). Education administrators make executive decisions and conduct transactions based on laws and regulations because of the MoNE's management structure. The relevant laws and regulations serve as the foundation for making decisions. Because SAC principals made informed decisions by laws and regulations, they may have perceived their decision-making styles as rational and logical. However, the fact that principals make rational decisions may be related to their success expectations. Managers may rationally make decisions because their rational approach in the implementation process of strategic decisions will meet their expectations of success. Administrators in MoNE-affiliated educational institutions are responsible for putting the central organization's strategic decisions into action (MoNE, 2021). As a result of the decisions taken, success or failure is determined not only by the decision itself but also by the effectiveness with which the decisions are implemented (Steinberg, 2003, p. 33). It is possible that managers make decisions in a rational manner because their rational approach in the implementation process of strategic decisions will meet their expectations of success.

The study found that the principals had a low avoidance style. Low perception levels of SAC principals' avoidant decision style indicate they do not delay or postpone their decisions. This study's finding is consistent with previous research done in the field (Acar, 2020; Ölçüm, 2015; Özgenel, 2017). Individuals who do not avoid making decisions or postpone decision-making have a high internal locus of control and self-confidence (Scott & Bruce, 1995). When considering the opinions of the participating principals on the characteristics of social entrepreneurship, it is clear that their self-confidence perceptions are high. This is one of the reasons they do not avoid making decisions. Simultaneously, one of the reasons SAC principals do not hesitate to make decisions is that they do not have a negative perception that they will fail because they make more rational decisions.

The study investigated the relationship between decision-making styles and social entrepreneurship. According to the findings, only the rational and avoidant styles are related to social entrepreneurship characteristics. Canonical correlation analysis revealed that the five DMS sub-dimensions of the SAC principals explained approximately 27% of the SE. Again, the canonical correlation analysis results revealed that the decision-making style that determined the social entrepreneurship of the center principals the most was the rational style, and the least decisive style was avoidant. Accordingly, it is understood that the center principals with a highly rational decision-making style have high risk-taking, self-confidence, and creativity characteristics. The belief of decision-makers who are rational in decision-making that they will reach the best solution depending on acquiring information, evaluating it according to goals and values, creating alternatives for decisions, and exhibiting logical approaches in the process of implementing decisions (Ölçüm, 2015), can lead them to be more entrepreneurial.

On the other hand, it is seen that the social entrepreneurship characteristics of the center principals decrease as the level of having an avoidant style increases. Individuals who avoid making decisions have a negative perception that they will always be unsuccessful in their work (Balkıs, Duru, Buluş, & Duru, 2006, p. 59), which reduces their self-confidence. It may prevent them from having entrepreneurial characteristics. The insufficiency of a study in the literature revealing the relationship between decision-making styles and social entrepreneurship has limited the ability to compare research results. Korkmaz's (2006) research findings, on the other hand, show that school principals with sociable, social, and innovative personality traits are proactive in making rational decisions with real and logical data without being influenced by their feelings and emotions. As a result, the creativity and self-confidence of principals who make rational decisions and engage in social entrepreneurship grow. SAC principals are more active in finding solutions to problems, providing resources that enrich education and training activities, and creating social values due to their creativity and self-confidence. Thus they can become more effective institutions by achieving their SAC goals (MoNE, 2020).

The study's findings are important for individuals to see their performance, SAC principals' opinions on their decision-making styles, and social entrepreneurship through self-reports. The study's findings indicate that the decision-making styles of SAC principals have the potential to influence social entrepreneurship. It is necessary to understand which variables are used in different decision-making styles and to reveal the effectiveness of the individual in the decision-making process. At this point, the research findings help to understand the effectiveness of principals in managerial activities. Furthermore, the research findings provide important data to senior management regarding the managers' decision-making styles. Knowing which decision-making style an individual employs regularly is an important criterion for arriving at productive and healthy solutions in decision situations (Taşdelen, 2001). SAC principals make decisions rationally and logically, and it is clear that they prioritize healthy and productive solutions in their decisions. At this point, SAC principals can inform senior management that managerial decision-making activities are carried out in accordance with the principle of binding decision.

4.1. Limitations and Recommendations

This study aimed to determine SAC principals' decision-making styles and social entrepreneurship. As a result, there is a need for studies to be conducted in various school types (primary, secondary, and high school) all across Türkiye. Additional research comparing private and public schools on the same variables is possible. School principals' social entrepreneurship; self-efficacy, self-regulation, personality, self-perception, and other similar variables. Qualitative research can be conducted to better understand SAC principals' decision-making styles and social entrepreneurship. SAC assistant principals may also be included in the study's sample. As the most important stakeholders in education, teachers can be used to conduct social entrepreneurship research. Furthermore, the effects of variables on teachers' performance, well-being, and student success can be studied. Moreover, additional research can be conducted to define pedagogical strategies and methods to improve school principals' social entrepreneurship.

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GENİŞLETİLMİŞ ÖZET

Giriş

Son yıllarda yapılan araştırmalar okul müdürlerinin girişimcilik (Köybaşı & Dönmez, 2016; Öztürk, 2021, Pashiardis & Savvides 2011) değişime liderlik yapma ve yenilikçi rollerine (Şahin, 2018; Pihie, Asimiran & Bagheri 2014) dikkat çekmekte söz konusu rollerin okulların etkililiğine ve sürdürülebilirliğine katkı sağladığı ileri sürülmektedir. Pashiardis ve Savvides (2011)'e göre müdürlerin girişimcilik özellikleri, öğrencilerin öğrenme kapasitelerini artıracak öğrenme çevreleri oluşturma çabalarını etkiler. Girişimci okul müdürleri, okulun gelişmesine ve varlığını etkili bir şekilde sürdürmesine yönelik olası engelleri ortadan kaldırarak, okulun amaçlarına ulaşmasında fırsatlar oluşturmada ve yenilikçi okul kültürü yaratmada öncüdürler (Korkmaz, 2006). Bununla birlikte etkili okul müdürlerinin sergiledikleri girişimci tutumlar, onları okul içindeki ve dışındaki paydaşlarla ortak bir vizyon oluşturmaya sevk eder Hallinger & Murphy (1986) ve böylece okullar değişen toplumun istek ve beklentilerine daha duyarlı hale gelirler (Gümüşeli, 2001). Bütün bu değişen roller, beklentiler, ihtiyaçlar çerçevesinde okul müdürlerinin liderlik rollerindeki dönüşüm önemli görülmekte ve müdürlerden girişimcilik özelliklerine sahip olmaları beklenmektedir (Bayrak ve Terzi, 2004; Çelikten, 2001, 298).

Okul yöneticilerinin örgütsel ve eğitimsel değişimleri başlatması ve başarı ile uygulaması için eylem ve davranışları önemlidir (Hansson & Andersen, 2007). Senge'ye (2003, s. 16) göre zihni modeller insanların algılarını ve eylemlerini etkiler. Bu noktada bireylerin karar vermeye/almaya yönelik zihinsel modelleri olarakta ifade edilebilecek karar verme stilleri, bireyin sorunlara yaratıcı çözüm bulma, kendilerine güven duyma ve risk alma eylemleri ile

ilişkili olabilir. Bununla birlikte alanyazında karar verme stillerinden rasyonel stilin yaratıcılıkla (Özgenel, 2017); bağımlı stilin düşük öz düzenleme yeteneği ve düşük benlik saygısıyla (Thunholm, 2004), kaçınan stilinin düşük öz yeterlilik algısıyla (Öneren & Çiftçi, 2013) ve kontrol ve özgüven eksikliği ile (Scott ve Bruce, 1995) ilişkili olduğunu gösteren çalışmalar bulunmaktadır. Bu bağlamda yöneticilerin karar verme stillerinin; sosyal girişimciliğin yaratıcılık, özgüven ve risk alma davranışlarını açıklayabileceği düşünülmektedir.

Türkiye'de okul yöneticilerinin karar verme stillerine yönelik yapılan çalışmalar yöneticilerin karar vermede en çok rasyonel stili tercih ettiğini göstermektedir (Acar, 2020; Oğuz, 2009; Kurban & Yaşar, 2015; Ölçüm, 2015; Özgenel, 2017). Bununla birlikte okul yöneticilerinin karar verme stilleri; problem çözme becerisinin ve yaratıcı düşünme eğiliminin (Özgenel, 2017) iletişim becerisinin (Tekin, 2018), dönüşümcü liderlik özelliklerinin (Oğuz, 2008), psikolojik dayanıklılığın (Yıldız, 2015), genel olarak erteleme eğilimlerin (Acar, 2020; Uğurlu, 2013) ve iyi oluşun (Uslu, 2016) anlamlı bir yordayıcıdır. Önceki araştırmaların karar verme stillerini daha çok örgütsel tutum ve davranışlar ile ilişkilendirdiği söylenebilir. Alan yazın incelendiğinde eğitim örgütlerinde yöneticilerin karar verme stilleri ve sosyal girişimcilik özellikleri arasındaki ilişkileri analiz eden herhangi bir çalışmaya rastlanmamıştır. Bu nedenle böyle bir araştırmanın yapılmasına ihtiyaç duyulmuştur. Bu araştırmanın Bilim ve Sanat Merkezi (BİLSEM) müdürlerinin liderlikle doğrudan ilgili olduğu düşünülen sosyal girişimcilik özelliklerini ve karar verme stillerini betimleyen ve bu değişkenler arasındaki ilişkiyi analiz eden yönü ile alan yazına katkı sağlaması beklenmektedir. BİLSEM'ler özel yetenekli-yaşıtlarından bilişsel, sosyal ve duygusal açıdan farklı özelliklere sahip-öğrencilere zenginleştirilmiş ve farklılaştırılmış özel eğitim ve öğretim imkânlarına sunan kurumlardır. Fırsat eşitliği bağlamında özel yetenekli öğrencilerin üst düzey potansiyellerini dönüştürme sürecinde merkezlere kritik görevler düşmektedir. Karar verici konumundaki merkez müdürlerin karar verme, kararların niteliğini etkileyerek ilgili kurumlarda sunulan eğitim-öğretim hizmetlerinin niteliğini değiştirebilir. Ayrıca müdürlerin yenilikçi ve girişimci özellikleri, değişime bilişsel açıklıkları, sosyal değişim yaratma güçleri ve belirsizlikleri karşı koyan tutumları, öğrencilerin çok yönlü gelişimini sağlayacak koşulları yaratmalarını kolaylaştırabilir. Bu doğrultuda çalışma, kanonik korelasyon analizi kullanılarak merkez müdürlerinin karar verme stilleri ile sosyal girişimcilikleri arasında bir ilişkinin olup olmadığını belirlemeyi amaçlanmış ve aşağıdaki alt amaçlara cevap aranmıştır:

1. BİLSEM müdürlerinin görüşlerine göre karar verme stilleri ve sosyal girişimcilik özellikleri nasıl dağılım göstermektedir?
2. BİLSEM müdürlerinin görüşlerine göre karar verme stilleri ve sosyal girişimcilik düzeyleri arasında anlamlı bir ilişki var mıdır?

Yöntem

Araştırma ilişkisel tarama modelinde desenlenmiştir. Değişkenlerin analizinde betimsel istatistiklerden ve kanonik korelasyon analizinden yararlanılmıştır. Araştırmaya Türkiye genelinde BİLSEM'lerde görevli 281 merkez müdürü katılmıştır.

Bulgular

Araştırma sonuçlarına göre BİLSEM müdürlerinin sosyal girişimcilik özelliklerine yönelik algıları görece yüksektir. Müdürler karar verme stillerinde en yüksek puanı rasyonel stilde(Ort.= 4.49; SS .43), en düşük puan ise kaçınan stilde(Ort.=2.08; SS=.75) aldıkları tespit edilmiştir. KVS ile SG alt boyutları arasındaki en yüksek korelasyon katsayısı pozitif yönde rasyonel stil ile özgüven arasında hesaplanmıştır ($r = .46$; $p < .01$). Bununla birlikte KVS ve SG arasında en düşük ilişkinin negatif yönlü olarak kaçınan stil ve yaratıcılık arasında olduğu görülmektedir ($r=-.12$; $p< .05$). Ayrıca karar verme stillerinden en yüksek korelasyon katsayısının sezgisel stil ile kaçınan stil arasında olduğu ($r= .38$, $p<.01$) bulgulanmıştır. Genel olarak değerlendirildiğinde KVS'den rasyonel stil$_{(**p<.01)}$ ve kaçınan stil$_{(**p<.01,*p<.05)}$ ile sosyal girişimcilik özellikleri arasında anlamlı ilişkilerin olduğu tespit edilmiştir.

Araştırmada KVS beş değişken SG üç değişken mevcut olduğu için üç kanonik korelasyon çifti hesaplanmıştır. Üç çiften birinci çiftin anlamlı olduğu tespit edilmiştir (bkz. Tablo 2, Wilk's $\lambda = 0.717$, $F(15) = 6.452$, $p < .05$). Bağımlı değişken sosyal girişimcilik ile bağımsız değişken karar verme stilleri arasında %52'lik orta düzeyde doğrusal bir ilişkinin olduğu görülmektedir. Söz konusu doğrusal ilişkinin karesi ise değişkenler arası açıklanan varyansı vermektedir (Tabachnick & Fidell, 2013). Buna göre bağımsız set olan karar verme stilleri bağımlı set olan sosyal girişimciliği %27 oranında açıklamaktadır.

Bununla birlikte kanonik korelasyon analizinden elde edilen korelasyon katsayı ve değişkenlerle oluşturulan U1 denklemi aşağıdaki gibidir:

$$U1 = [(-.876 \times Rasyonel\ Stil) + (-.224 \times Sezgisel\ Stil) + (.056\ \ Bağımlı\ Stil) + (.278 \times Kaçınan\ Stil) + (.190 \times Anlık\ stil)] \quad (eq1)$$

Formül incelendiğinde U1 kanonik değişkenine (KVS) en yüksek katkının rasyonel karar verme stilinde (-.876) en düşük katkının ise bağımlı karar verme stilinde (.056) olduğu görülmektedir. Bununla birlikte ikinci kümedeki değişkenlerin standardize edilmiş korelasyon katsayıları incelendiğinde V1 kanonik değişkeninin (SG) oluşumuna en yüksek düzeyde katkı sağlayan değişkenin özgüven (-.729) en düşük katkının ise yaratıcılık (-.139) olduğu tespit edilmiştir.İkinci sette değişkenlerle ve korelasyon katsayıları ile oluşturulan denklem aşağıda verilmiştir.

$$V1 = [(-.257 \times Risk\ alma) + (-.729 \times Öz\ güven) + (-.139 \times Yaratıcılık)] \quad (eq2)$$

Birinci kanonik değişken setine ait kanonik yükler incelendiğinde(bkz. Şekil 2) KVS'den SG arasında aynı yönde bir artış olduğu görülmektedir (r_{c1}=.518, $p < .05$). Başka bir deyişle, karar verme stilleri ile sosyal girişimcilik arasında pozitif ve anlamlı kanonik ilişkiler bulunmaktadır. Öte yandan kanonik yükler; değişkenlerin kendi kanonik değişkeni içindeki temsiliyetini belirler (Özdamar, 2010) ve değerlerin mutlak değerine göre temsil gücü ve büyüklüğü hesaplanır (Karagöz, 2016). Tabachnick ve Fidell (2013) .30'dan büyük değerlerin değişken setinin bir parçası olduğunu belirtmektedir. Sonuç olarak kanonik yük değerleri açısından rasyonel stil (-.930) ve kaçınan stil (.449) ilk setin parçası olarak kabul edilebilir. SG setinin kanonik yük değerleri açısından risk alma (-.772), özgüven (-.966) ve yaratıcılık (-.705) değişkenleri ikinci setin bir parçası olarak değerlendirilebilir. Bu doğrultuda sadece rasyonel ve kaçınan stilin sosyal girişimcilik özelliklerinin belirleyicisi olduğu ve rasyonel stilin bu belirleyici rolü kaçınan stile göre daha fazla taşıdığı söylenebilir. Sosyal girişimcilik özelliklerininden risk alma, özgüven ve yaratıcılık birinci kanonik değişkende ikinci setin parçaları olarak kabul edilebilir.

Tartışma ve Öneriler

Araştırmanın sonuçları BİLSEM müdürlerinin KVS en yüksek puan ortalaması rasyonel stilde ve bağımlı stilde olduğu; sosyal girişimcilik özelliklerinden en yüksek puan ortalamasının ise öz güven ve yaratıcılık boyutlarında aldıkları görülmektedir. Bulgular karar verme stillerinden sadece rasyonel stilin ve kaçınan stilin sosyal girişimcilik özellikleri ile ilişkili olduğunu göstermektedir. Kanonik korelasyon analizi, BİLSEM müdürlerinin KVS'ne ait iki alt boyutun, SG'in yaklaşık % 27'sini açıkladığını ortaya koymuştur. Araştırma sonuçları göstermektedir ki karar verme stilleri, sosyal girişimcilik özelliklerini etkileme potansiyeline sahiptirler. Ayrıca araştırmanın sonuçları müdürlerin yönetsel faaliyetlerdeki etkililiklerini ve sosyal girişimcilik özellikleri betimleyen yönü ile üst yönetime de önemli veriler sunmaktadır. Bu kapsamda aynı değişkenler üzerinden özel okullarda, kamu okullarında karşılaştırma yapan ilave çalışmalar yapılabilir. Okul müdürlerinin sosyal girişimcilik özellikleri; öz- yeterlilik, öz düzenleme, kişilik, benlik algısı ve benzeri değişkenlerle birlikte incelenebilir. BİLSEM müdürlerinin karar verme stilleri ve sosyal girişimcilik özelliklerini daha detaylı açıklamak amacıyla nitel araştırmalar yapılabilir.