

RELATIONSHIP BETWEEN PATH-GOAL LEADERSHIP BEHAVIOR AND DECISION-MAKING STYLES ACCORDING TO PERSONAL AND WORKING PARAMETERS

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Abstract: Decision-making is the key competence of leaders, the outcome of which is primarily influenced by the personality of the leader defined through his or her style of leadership and as well the style of decision-making. The research paper deals with the relationship between the decision-making style of a manager and his or her leadership style in association with personal and working parameters. The parametric One way ANOVA was used to identify and determine the size of the difference in the achievement of the style of leadership within the personal and working parameters. The results reveal that the difference achieved in the number of "Directive" points differs significantly within the duration of the current management position. Point scores in leadership styles also vary significantly across individual decision styles. **Abstract:** needs to be written in English, Times New Roman, Font 6. The abstract should be no longer than 10 lines, alignment to blocks.

Keywords: Decision making style, leadership style, working and personal parameters

1 Introduction

The style of decision-making and the style of leadership are two different constructs that are individually expressed. Decision style is the result of the cognitive process, leading to the selection of solutions from several alternatives, based on the decision-maker's way of thinking. The style of decision-making is based on the theory of cognitive styles and leadership styles of behavioral attitudes and interactions with other people. Studies prove that the relationship between decision-making and leadership lead to ambiguous results and are practically divided into two groups. One group of studies claims that there is a dependency (Uzonwanne, 2015; Hariri et al, 2014; Alkharabsheh, 2014; Amir et al, 2014; Muhammad, 2010; Keng & AlQudah, 2017) between the styles and the second group says that dependency does not exist (Verma et al, 2015; Ejimabo, 2015). Several studies deal with decision styles and manager leadership potential, such as visionary leadership, tutoring skills approach, and the role of motivator and his ethics (Chikeleze & Baehrend, 2017, Porvaznik et al, 2017), follow the influence of leadership style on organizational efficiency (Ljudvigová, 2018, Paisi Lazarescu, 2015). This results claiming that the rational style of decision-making positively affects the efficiency of the organization. Autocratic style, on the contrary, has a negative impact on its effectiveness. Based on the researchers authors have confirmed that the style of decision making is a significant indicator of the efficiency of the organization.

1 Literature overview about leadership style and decision making style

Leadership style

Relative to the situational leadership (Hersey and Blanchard, 1969) and its later development (Blanchard et al., 1993; Blanchard et al., 2013), which suggest that a leader must adapt to the development level of followers, path-goal theory give priority to the relationship between leadership style and characteristics of followers and tasks. House and Evans developed path - goal theory of leadership in the 1970s, where the key idea of the model is based on the fact that the style of leadership always depends on the situation in which the manager is located, and can therefore apply several styles of leadership. The basic components of path-goal leadership can be divided into the following groups - leader behavior, follower characteristics, task characteristics, the characteristics of the

environment and the motivation that affects the subordinates. The characteristics of the subordinates are determined primarily by the needs, skills and maturity of the group as well as of each individual. The characteristics of environment and task characteristics are caused by the structure and difficulty of the task and the key factor is existing team dynamics of the group.

The basic idea of the path-goal theory is to manage subordinates in a way they are able to achieve goals and effective performance. This process is implemented through defining goals, clarifying path, removing obstacles and providing support. Path - goal theory defines directive, supportive, participative and achievement - oriented leadership behavior (Northouse, 2016) as follow - Directive leadership, Supportive leadership, Participative leadership, Achievement-oriented leadership. The strong point of this theory is that provides a very useful theoretical framework for understanding the variety of leadership styles used in terms of characteristic of group members which will ultimately cause positive changes in the group's performance. In addition, the theory attempts to integrate the basic principles of motivation into leadership theory and at the same time offers a simple application of individual styles of leadership depending on the character of the group and the character of the task. This makes it easy for the manager to find out which style will be the most effective in the situation. The path-goal theory of leadership created the background of charismatic leadership theory that was based in 1976. This theory also formed background for elaborating and extending the theory of value-oriented leadership published by House in 1996 (Lussier-Achua, 2012).

In contrast to trait approach of leadership (Bass, 1990; Stogdill, 1974) and skills approach of leadership (Katz, 1955; Mumford et al., 2000) that are focused on especially on the personality of leader, his or her traits and skills, path-goal theory give us more complex view on leadership considering not just the leader but also followers and the organizational setting.

Decision making style

Decision styles can be identified by standardized tests. The most commonly used are "Decision making style inventory" (DMSI), "Myaers - Bricks type indicator" (MBTI) or "Cognitive style inventory" (CSI). All three tests assess the style of decision-making from two point of view - the way of obtaining information and processing and the way of using the information in the decision-making process. DMSI testing provides four decision styles: systematic-internal, systematic-external, spontaneous-internal, spontaneous-external. Testing with MBTI provides four decision styles: sensing, thinking, feeling, intuiting. CSI testing provides two decision styles: systematic, intuitive.

A deeper insight into the decision-making style of a manager is provided by Driver (2006), according to whom the decision-making style is understood as a trained manner of thinking. Driver created an original conceptual model for identifying a decision-making style - the "Driver Dynamic Decision Style Model". The first part is focused on the amount of information, which managers typically use during decision-making and the second part focuses on whether managers focus on a concrete step in a determined procedure or generate a variety of variants (uni-focus and multi-focus) (Driver, 1999).

Connecting decision style, self-interest, and personality type can predict the individual styles of "attachment" (Deniz, 2011), which are built within an individual since birth (Bowlby, 1982) and the "attachment" theory explains the process of building relationships and interpersonal relationships (Simpson, Rholes, 1998). The "safe" style of attachment is a significant indicator of self-interest, and the "vigilant", "evasive", and "procrastinative" decision-making styles. Predicting a "hyper-

vigilant" style of decision-making can again make the attachment style "frightening".

A Dutch study (French et al, 1993) assessed the connection between the style of a person's driving and their decision-making style. Seven independent decision-making styles were created – control, instinct, social resistance, perfectionism, idealism, rigor, hesitancy and six styles of driving – social resistance, speed, calmness, concentration, planning and deviations. The study confirmed that people's driving methods demonstrate their basic decision-making style and thus they get themselves to different degrees of accident risk (West et al, 1992). It was discovered that drivers aged up to 60 who achieved a low score in the "rigor" decision-making style are more at risk of accidents and the style of driving turned out to be faster and more aggressive. Drivers aged over sixty years of age, characterized by less rigor and more hesitancy and fast driving, demonstrated an independence in relation to higher accident rates.

Cognitive skills and working memory that support rational decision-making are aggravated by age (Verhaeghen et al., 1993). There are emotional and affective skills that support intuition and these skills can remain stable or even age-enhanced. (Blanchard-Fields, 2007; Charles, Carstensen, 2010; Kennedy, Mather, 2007; Hanák, 2014).

2 Methodology

The purpose of the research study is to identify the style of leadership and the decision making style of managers in leading positions in Slovak enterprises and to measure their mutual association and their dependence on elements of working and personal parameters.

In the research presented here, the decision-making style of managers in leading positions in Slovak companies was determined and associated with others personal (such age, owning the current position) and working parameters (functional area of control, management level, team size, gender, decision problem). The statistical sample (N = 250 respondents) is comprised of managers operating in tactical and top management. The sample was created in PSPP by random selection. The researchers have ensured the measurement objectivity by using data collection tools in electronic form to prevent influencing the research subject. The participants were instructed in writing by one researcher.

The observation survey was conducted using a questionnaire on the decision-making of managers. To identify the decision-making styles in the research project, a test based on a MB-type indicator was used, observing two dichotomies sensing/intuiting and thinking/feeling. The Path-Goal Leadership Questionnaire was used to identify these styles of leadership. (Northouse, 2016).

The reason for using the MBTI is its high reliability. The Cronbach's alpha (α) was used to analyze reliability of the decision-making style test in SR conditions. Reliability scale „Intuiting"/„Sensing"/„Thinking"/„Feeling" ranged from 0.83 to 0.86. By comparing the reliability values with other authors and testing tools, the values presented here represent an acceptable reliability level of the MBTI test for the decision-making style.

Data analysis

The data obtained through the questionnaire about decision-making are of a nominal (level of management, functional area of control, gender) and ordinal variable (the number of team members, age of the manager, owning the current management position - number of years). The data obtained from MB – type indicator denote interval variables, presented as Score of decision making style (Score of DMS) and the data from Path-Goal Leadership Questionnaire presented as Score of leadership style. Two-dimensional inductive statistics methods were used

to test the dependence of the variables. The non-parametric Chi Square Test of Independence was used to test the dependence of the Leadership style (directive, achievement-oriented, participative, supportive) and personal and working parameters and the association between decision making style and leadership style. The strength of association was measured through Spearman, Kendall Tau – c and the ETA coefficients and the proportion of variability explained by nominal variable (η^2). The Cohen scale was used to interpret the strength of association between variables (Cohen, 1988).

The parametric One-way ANOVA was used to identify and define the range in differences between decision-making style scores of managers within groups of nominal variables. Then the effect size r was calculated as a square root of the percent variance between groups (SSM) and total variance (SST). The assumption of homogeneity of variance and sphericity assumption was measured through Levene's test.

The assumption of homogeneity of variance and sphericity assumption was measured through Levene's test. The data were analysed in PSPP statistical software. Hypotheses were tested at a significance level of $p \leq 0.05$; while maintaining the primary rule of the Chi-Square Test of Independence, where the theoretical frequencies did not fall below a value of 5 in 80%, and for other values $X > 1$ applied. Null and alternative hypotheses were tested, which we present in individual results.

3 Research results and discussion

Based on the results of descriptive statistics on leadership styles, we can say that respondents are more directives (M = 21.93) than participative (M = 19.11). Simultaneously, when rating individual styles there was higher variability variable in the Participative scale (SD=2.39) compared to the Directive scale (SD = 2.28).

Kurtosis and skewness has reached at all scales the following values: Directive score (kurtosis = .74, skewness = -.91), Supportive score (kurtosis = .47, skewness = -.37), Participative score (kurtosis = -.14, skewness = -.21), Achievement score (kurtosis = .78, skewness = -.38)

Table 1 Frequency table for leadership style score

Variable	N	Mean	Std Dev	Var	Kurtosis	Skewness	S.E. Skewness	Range	Min	Max
Directive score	250	21.93	2.28	5.21	.74	-.91	.15	13	13	26
Supportive score	250	18.95	2.25	5.07	.47	-.37	.15	12	12	24
Participative score	250	19.11	2.39	5.70	-.14	-.21	.15	13	12	25
Achievement score	250	18.94	2.38	5.65	.78	-.38	.15	14	11	25

Source: own processing

The style of decision-making and the style of leadership are two different constructs that are individually expressed. To clarify the differences in both styles, we observed their interdependence, which was not confirmed. We tested hypotheses:

- H0= There is no statistically significant dependence between decision making style and leadership style
- H1= Decision making style and leadership style are related to one another

Table 2 Correlation between Decision making style & Leadership style [Spearman ρ , Kendall Tau – c, p-value]

Variables	D_S	S_S	P_S	A_S
Intuiting score	-.12	.05	.09	.14
Sensing score	-.08	.03	.07	.10
Thinking score	.492	.121	.852	.371

Sensing score	.12 .09 .549	-.03 -.04 .170	-.09 -.06 .159	-.15 -.11 .114
Thinking score	.09 .07 .531	-.19 -.14 .000	-.07 -.05 .932	.01 .01 .416
Feeling score	-.09 -.06 .332	.20 .14 .000	.08 .08 .951	-.01 -.01 .217

Source: own processing with PSPP
(Note: Leadership style: Directive score = D_S, Supportive score = S_S, Participative score = P_S, Achievement score = A_S)

We reject the H1 hypothesis at the significance level $p \leq .05$, and accept the null hypothesis H0. There is no statistically significant dependency between the number of points achieved in the leadership styles test and the decision-making styles: Directive_score $\rho = -.12$, Supportive_score $\rho = .05$, Participative_score $\rho = .09$, Achievement_score $\rho = .14$ at Intuiting_score, which is an insubstantial dependence between variables, with $p \text{ value} > .1$. Very similar results were reached also for other decision-making styles to the relationship to leadership styles. Statistically significant dependence was only confirmed in the relationship Supportive_score and Thinking_score, Feeling_score ($p = .000$).

However, the dependence strength is weak and negative in Supportive_score and Thinking_score ($\rho = -19$), which also indicates the dependency direction. If the number of points in the Thinking decision style increases, the number of points in the Supportive leadership style decreases. The Supportive_score and Feeling_score score also showed weak ($\rho = .20$), but statistically significant dependence ($p = .000$). The results show that by reaching a higher number of points in the style of Feeling_decision style, it will reach a higher number of points in the Supportive_decision style.

The non-parametric Chi Square Test of Independence was used to test the dependence of Score of decision-making style and the personal and working parameters. The Eta coefficient measures the relationship between the nominal and the interval variables. The summary results are shown in table 3. The following hypotheses were tested:

- H0 = there is no dependence between the Score of leadership style and the personal and working parameters
- H1 = the Score of leadership style and the personal (age, owning the current position) and working parameters (functional area of control, management level, team size, gender) are related to one another

Table 3 Summary results table for association between Score of leadership style and others parameters [ETA; η^2 ; p-value]

Variables	A_S	P_S	S_S	D_S
Functional area of control	.20 .04 .144	.27 .0729 .885	.14 .0196 .754	.29 .0841 .330
Management level	.17 .0289 .603	.23 .0529 .074	.16 .0256 .374	.14 .0196 .546
Gender	.08 .0064 .503	.12 .0144 .928	.05 .0025 .164	.11 .0121 .163

Source: own processing with PSPP
(Note: Leadership style: Directive score = D_S, Supportive score = S_S, Participative score = P_S, Achievement score = A_S)

We reject the hypothesis H1 at the significance level $p \leq .05$. There is no statistically significant dependence on the composition of the team from the gender perspective (only men, only women, both) and the number of points in the leadership style ($p \text{ A}_S = .503$, $p \text{ P}_S = .928$, $p \text{ S}_S = .164$, p

$D_S = .163$). The variable composition of the team explains only a very low proportion of variability in the number of points of the leadership style ($\eta^2 \text{ A}_S = 0.64\%$, $\eta^2 \text{ P}_S = 1.44\%$, $\eta^2 \text{ S}_S = 0.25\%$, $\eta^2 \text{ D}_S = 1.21\%$). We also reject the hypothesis H1 at the level of significance $p \leq .05$ about the dependency of the functional area of management as well as the level of management and the number of points in the leadership style.

Table 4 Summary results table for correlation between Score of leadership style and others parameters [Kendall Tau - c, Somers' d, p-value]

Variables	D_S	S_S	P_S	A_S
Owning of current position	-.19 -.20 .232	-.01 -.01 .317	.07 .07 .575	-.02 -.02 .418
No. of team members	-.02 -.02 .043	-.07 -.08 .388	.04 .05 .119	.04 .04 .344
Age interval	-.18 -.19 .022	-.12 -.13 .608	-.11 -.12 .108	-.02 -.02 .745

Source: own processing with PSPP
(Note: Leadership style: Directive score = D_S, Supportive score = S_S, Participative score = P_S, Achievement score = A_S)

We reject the hypothesis H1 at the significance level $p \leq .05$, and we accept the null hypothesis H0. There is no statistically significant dependence between the examined variables. All values show a very low dependence, this dependence being statistically insignificant. The number of points achieved in the leadership style test is not related to how long the manager is in the current leadership position.

Statistically significant dependence was confirmed only in the relationship of Directive_score and the size of the team $p = .043$ but by the trivial strength of dependence Tau-c = $-.02$. As well as the weak dependence between Directive_score and the age of manager Tau-c = $-.18$, $p = .022$.

The parametric test One way ANOVA has been used to identify and determine the size of the difference in the achieved human-style leadership score within the groups of nominal variables. The results of the Levene's test for the analysis of the sphericity and homogeneity of variance do not confirm the violation of this assumption if $p > .05$. Then, we have followed the basic hypothesis of statistically significant differences in the area of working parameters (functional area of control, management level, number of team members) and personal parameters (gender, length of the current managerial position, age of managers) that differ in the number of points of the leadership style. The following hypotheses were tested:

- H0: There is no statistically significant difference in Score of leadership style between the groups of Functional area of control/ Management level/ No. of team members/ Gender, Owning of current position, Age of managers.
- H1: There is statistically significant difference in Score of leadership style between the groups of Functional area of control/ Management level/ No. of team members/ Gender, Owning of current position, Age of managers.

The results of the statistical analysis ANOVA and conditions for its implementation (Levene statistic and data normality testing) are presented in the following tables.

Table 5 Summary results table for ANOVA and Homogeneity of variance_Directive style

Variables	Directive style				
	Levene Stat.	Sig.	F	Sig.	r
Functional	1.81	.098	1.88	.084	

area of control					
Gender	.96	.385	1.58	.208	
Management level	1.16	.314	.93	.396	
Decision making style	.59	.620	.47	.702	
Owning of current position	.90	.465	3.08	.017	.212
No. of team members	3.65	.027	9.84	.000	
Age_interval	1.04	.374	3.40	.018	

Source: own processing with PSPP

Table 6 Summary results table for ANOVA and Homogeneity of variance_Supportive style

Variables	Supportive style				
	Levene Stat.	Sig.	F	Sig.	r
Functional area of control	.43	.861	.53	.782	
Gender	1.26	.285	1.47	.232	
Management level	1.38	.253	.30	.741	
Decision making style	.32	.808	3.48	.017	.197
Owning of current position	.00	1	1.85	.120	
No. of team members	.28	.756	6.26	.002	
Age_interval	.18	.907	1.23	.301	

Source: own processing with PSPP

Table 7 Summary results table for ANOVA and Homogeneity of variance_Achievement style

Variables	Achievement style				
	Levene Stat.	Sig.	F	Sig.	r
Functional area of control	2.40	.028	2.40	.028	
Gender	6.71	.001	2.50	.084	
Management level	.15	.860	3.69	.026	.164
Decision making style	.29	.832	2.57	.055	.170
Owning of current position	1.03	.393	2.00	.096	
No. of team members	2.59	.077	2.19	.114	
Age_interval	1.75	.157	.42	.736	

Source: own processing with PSPP

Table 8 Summary results table for ANOVA and Homogeneity of variance_Participative style

Variables	Participative style				
	Levene Stat.	Sig.	F	Sig.	r
Functional area of control	.53	.784	2.01	.065	
Gender	.32	.724	.15	.864	
Management level	.90	.406	3.28	.039	.158
Decision making style	.17	.919	2.53	.058	.167
Owning of current	.33	.860	.55	.696	

position					
No. of team members	.19	.831	4.58	.011	
Age_interval	.81	.489	.49	.693	

Source: own processing with PSPP

Based on the results of the ANOVA statistical analysis presented in tables 5, 6, 7 and 8 we can state that the individual groups of managers, divided by functional areas of management, do not differ in the number of points reached in the leadership style. Also, the composition of the team members (gender basic: male, female, or both) that the manager manages, does not affect the manager's style of leadership. The difference achieved in the number of points in the "Directive" style $F(2,250) = 3.08$, $p < .05$ with the effect of the difference $r = .212$ is statistically significantly different within the length of the action at the current management position. Top leadership scores are achieved by managers who are in the current position from five to eight years. The lowest score have managers running on a leading position within three years.

The statistically significant difference in the leadership style "Achievement" and "Participative", appears at the individual levels of management. Achievement leadership style gets $F(2,250) = 3.69$, $p < .05$, with the effect size $r = .164$ and Participative leadership style gets $F(2,250) = 3.28$, $p < .05$, with the effect size $r = .158$ being the most represented among managers in top management. According to the number of members in the team (Remenova et al., 2018), managers have a different number of points in the leadership style "Participative" $F(2,250) = 4.58$, $p < .05$ and "Supportive" $F(2,250) = 6.26$, $p < .05$. A statistically significant number of points is achieved by a manager with "Supportive" and "Participative" style in managing a team of over 13 members.

The age of the manager is a statistically significant indicator in the "Directive" style $F(2,250) = 3.40$, $p = .018$, where managers in age 31 to 40 reach the highest number of points in this leadership style.

Difference in the number of leadership style between Achievement-oriented, Participative and Supportive "Achievement" $F(2,250) = 2.57$, $p < .055$, "Participative" $F(2,250) = 2.53$, $p < .058$ and "Supportive" $F(2,250) = 3.48$, $p = .017$, was proved to be statistically significant. The highest score of points in the "Achievement" and "Participative" leadership style make Intuiting-Thinking style of decision-making; in the "Supportive", leadership style is it Sensing-Feeling style of decision-making.

4 Conclusion

The leadership style is defined through the behavioral attitudes and interactions with other people. Which style of leadership style is represented among Slovak managers we have identified through the Path-Goal Leadership Questionnaire.

The most represented leadership style is Directive style (almost 73% of respondents), the second one is Achievement - oriented style (12% of managers), the third one is Participative style (less than 10%) and the last one is Supportive style 3.70%. The intriguing dependence between leadership style and decision style has proven positive in Feeling decision making and Supportive leadership. Between the Supportive leadership and Thinking decision-making was negative, which emphasizes that by increasing the number of points in the Thinking decision-making style, the number of points in Supportive leadership style decreases in proportion. The dependence of other styles did not occur. We also found the dependence of working and personal parameters and individual styles of leadership. The association has emerged between the Directive leadership and the age of the manager and the size of the team he or she leads.

Using ANOVA testing, authors evaluated the difference in the achieved Path – goal theory defined leadership styles scores in individual work and personal parameters. The difference in the score of the number of leadership style points did not differ according to functional areas of management, nor the structure of the team members (in terms of gender - men, women, both). The difference in the number of points in the "Directive" leadership style varies significantly within the length of the current management position. The leadership styles: "Achievement-oriented" and "Participative", represent the highest proportion of managers in top management.

Point scores in leadership styles also vary significantly across individual decision-making styles. The most points in the "Achievement-oriented" and "Participative" leadership style achieve Intuiting-Thinking style of decision-making; in the "Supportive" leadership style is it Sensing-Feeling style of decision-making.

Authors found several studies focused on relationship between leadership and decision making in specific areas like education focused on University Development Context (R. Van Loveren, 2007) or in health services, focused on impact among nurses managerial level (Abood, Thabet, 2017). This research paper included mainly respondents from business environment and from companies operates in Slovakia. Overall research results are applicable in development of management theory and practice.

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Primary Paper Section: A

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