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The Infoneuroanalysis Relationship Between the Fields of Study of 1st Grade Secondary Schools Principals with their Leadership Style

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Abstract. This study was aimed to investigate the infoneuroanalysis relationship between the fields of study of 1st grade secondary schools principals with their leadership styles in district 3 of Shiraz. This study has an applied purpose in terms of methodology and used a descriptive correlational design. The statistical population consisted of 63 1st grade secondary schools principals in the Shiraz's 3rd district in the academic year of 2016-17. Among them, 56 principals were selected as sample through Morgan table using simple randomized and convenience sampling methods. In order to collect data on theoretical principles and literature, library resources such as articles, books, and the Internet were used. The research instrument was a researcher-made leadership style questionnaire which its validity was confirmed by the experts. Its reliability was calculated to be 0.77% using Cronbach's alpha. Pearson correlation coefficient was used for data analysis. According to the results, there is a significant relationship between the infoneuroanalysis (brain data analysis) and the field of study with the leadership style.

Keywords. Leadership Style, Field of Study, School Principals, Brain Information, Infoneuroanalysis.

1. Introduction

Infoneuroanalysis or Brain Data Analysis is one of the newest educational concepts examining the effect of words in the formation of talent and the development of thinking. This term was derived from a combination of Neurology or Infology and Informatics and Analysis words. Neuroanalysis can be described as a way to critique the unpredictable behaviors of individuals in a community. This method can help discover how different human brain structures can cause different moralities, thoughts and behaviors. Humans are able to learn anything if they can make them meaningful in their minds (Ardestani, 2012). The management system and exchanging information in the whole body can more closely resemble an organization. As a manager is responsible for managing the organization's affairs, all functions and tasks of an organization are not handled without the supervision, coordination and approval of senior management or general manager. Likewise, the ranges of actions taken in the body are undoubtedly under the command of a database known as the brain. The proper identification of command base can lead to a simple understanding of the cause of a number of behaviors both in ourselves and other people (Mohammadi, 2015). Although management and leadership are part of the same processes that are generally performed in each organization and group with similar strategies, some different features have been reported of different varieties of leadership. Although it is clear that all managers are responsible for leading a large or small group to achieve certain goals, they can handle this process in a variety of ways, each of which is categorized as a particular leadership style. One of the important factors in increasing the effectiveness and productivity is the brain data analysis (infoneuroanalysis) of principals and their leadership style as well as the individual's knowledge of their field of study. Since school principals use a variety of leadership styles and brain data analysis in their relevant fields of studies, the aim of this study was to investigate the relationship between brain data analysis and field of study with the leadership styles of 1st grade secondary schools principals and tries to answer the

question: is there any significant difference between the leadership styles and the brain data analysis style with their fields of study.

2. Hypotheses

There is a relationship between the brain data analysis of principals and their field of study and authoritarian style.

There is a significant relationship between the brain data analysis of principals and their field of study and benevolent style.

There is a significant relationship between the brain data analysis of principals and their field of study and consultative style.

There is a significant relationship between the brain data analysis of principals and their field of study and participatory style.

3. Method

This study has an applied purpose in terms of methodology and used a descriptive co relational design. The statistical population consisted of 63 1st grade secondary schools principals in the Shiraz *'s* 3rd district in the academic year of 2016-17. Among them, 56 principals were selected as sample size through Morgan table using simple randomized and convenience sampling methods. This research was performed using a Rensis Likert Leadership Style Questionnaire. This questionnaire consisted of 20 closed-ended questions relevant to the leadership style of the managers, and examined four management styles including consultative style, participatory management style, benevolent management style, and authoritative management style. The tool used is a brain data questionnaire on field of study. The questionnaire consisted of 22 closed-ended questions related to the principal's' field of study. This questionnaire examines five subgroups of experimental sciences, mathematical, humanitarian, technical, foreign language disciplines. In order to assess the content validity of the questionnaire, it was given to the relevant experts. The views of some experts and professors were taken and then the questionnaire was designed. The questionnaire was returned to them and a number of items were modified. Finally, the validity of the questionnaire was approved by these people.

Table 1. Cronbach's alpha coefficient for the studied factors

Cronbach's alpha coefficient	Variable	
0.74%	Authoritative management style	Management styles
0.76%	Benevolent management style	
0.74%	Consultative management style	
0.75%	Participatory management style	
0.77%	Management style	
0.74%	Infoneuroanalysis of principal's field of study	

According to the above table, the Cronbach's alpha coefficient for the dimensions of the management style questionnaire is larger than 70% as well as 0.77% for the management style questionnaire. In addition, the Cronbach's alpha coefficient for the brain data analysis questionnaire of principal's field of study was obtained 0.74%. Therefore, the research variables have acceptable reliability and it does not need to eliminate any questions.

4. Findings

The table 2 shows the frequency distribution of respondents based on their field of study.

Table2. Frequency distribution table of respondents based on their field of study

Field of study	Frequency	Percent
Mathematics	13	23.2%
Experimental science	17	30.4%
Humanities	9	16.1%
Technical training	10	17.9%
Foreign language	7	12.5%
Total	56	100

Here, the variables studied were analyzed using descriptive statistics including mean, mean, standard deviation, skewness value and kurtosis value. The average value for authoritative style variable is 1.86%, which has the lowest mean among the dependent variables. Then, the median mean value of the same variable was reported 1.80%, which is the lowest

median among the dependent variables. The mean value of the participatory style variable was calculated 4.01%, which is the highest mean among the dependent variables. In addition, the median value for the variables of the consultative and participatory styles was obtained 4.0%, which have the highest median value among dependent variables. With regard to the standard deviation associated with the dependent variables, the benevolent style variable with a standard deviation of 0.47 has the lowest standard deviation. In other words, it implies the dispersion of the data compared to the average of other dependent variables. The authoritative style variable with a standard deviation of 0.62% has the highest standard deviation. The skewness value was given for dependent variables, and it is observed that if the skewness is negative, then the distribution is skewed to the left, while if the skew is positive then the distribution is skewed to the right. Among the dependent variables, the participatory style with the value of -0.14% has skewness to the left and three other variables to the right. Meanwhile, the kurtosis value for the dependent variables was calculated and it was found that positive kurtosis creates an upward sloping curve, and negative kurtosis a downward sloping curve. In other words, their curve is flattened. Higher positive and negative kurtosis values indicate upward and downward sloping curves and the curve is flattened. In this regard, among the dependent variables, the authoritative style variable has an upward kurtosis and other variables with downward.

Table 4. Descriptive table of variables

Variable		Mean	Median	Standard deviation	Skewness	Kurtosis
Management styles	Authoritative management style	1.86	1.80	0.62	0.94	0.96
	Benevolent management style	3.75	3.70	0.47	0.36	-0.46
	Consultative management style	3.98	4.00	0.49	0.09	-0.98
	Participatory management style	4.01	4.00	0.52	-0.14	-0.42
Infoneuroanalysis of principal's field of study		3.24	3.25	0.55	-0.04	-0.76

The mean value of the brain data analysis for principal's field of study is 3.24% and the median value for the same variable has been calculated 3.25%. Furthermore, the standard deviation and the kurtosis values were calculated 0.55% and -0.04%, respectively and tend to be left skewed. The kurtosis value was obtained -0.76% implying downwards kurtosis.

Table 5. Normality of Variable Data

Variables		Kolmogorov-Smirnov test	Sig	Status
Management styles	Authoritative management style	1.120	0.162	Normal
	Benevolent management style	1.489	0.064	Normal
	Consultative management style	1.862	0.092	Normal
	Participatory management style	1.172	0.192	Normal
Infoneuroanalysis of principal's field of study		1.002	0.247	Normal

The values of the Kolmogorov-Smirnov test and the significance for the existing variables and their hypotheses are given in the table above. According to this table, the significance value for the variables studied is greater than 0.05 and the assumption is not rejected. As a result, the data of the studied variables are normal.According to the table 6 the value of the significant level of standardized residuals is greater than 0.05 indicating the normality of the residuals.

Table 6. Normality test of the Residues

Kolmogorov-Smirnov test		
Significant level	Test statistic	
0.395	0.898	Standardized residuals

In order to maintain the independence between the residuals, the value of non-correlation among the residuals should be between 1.5 to 2.5. Since the value for the hypothesis was 1.62, the residuals are thus independent.

Table 7. Testing the independence of residual

Model	Estimated standard error	Watson Durbin Test
1	0.52	1.62

An analysis of variance (ANOVA) was used to examine the significance of regression according to Fisher's statistics.

Table 8. Analysis of variance (ANOVA)

Source of change	Sum of squares	Degrees of freedom	Average of squares	F value	Significance level
Regression	4.228	4	1.057	4.314	0.000
Residuals	12.516	51	0.245		
Total	16.744	55			

Given the F value or Fisher statistics and the level of significance, the table above examines the significance of multiple regressions. Since the significance level of this test is less than 5%, it can be concluded that the significance assumption of the fitted regression model is not rejected, that is, the multiple linear regression model is appropriate. The regression model shows that in a multiple regression model, the principal's field of study score without the influence of dependent variables is 1.704%. In addition, the change in the standard deviation of infoneuroanalysis of the principal's field of study leads to a change of 0.296% in the standard deviation of the authoritative leadership style and the change in a standard deviation in the infoneuroanalysis of the principal's field of study change the standard deviation of 0.105% in the benevolent style. Likewise, the change in the standard deviation of infoneuroanalysis of the principal's field of study leads to a change of 0.114% in the standard deviation of the consultative leadership style and finally, 0.200% change in the standard deviation of participatory style. According to the results, the independent variable with the standard coefficient of 0.232% had the most positive relationship with the participatory style variable and infoneuroanalysis of the principal's field of study variable had the least positive relationship with the benevolent style variable (0.126%). Also, the variable of infoneuroanalysis of the principal's field of study had a negative impact on the authoritative style variable (-0.307%).

Sub-hypothesis 1: There is a relationship between the infoneuroanalysis of the principal's field of study with the principal's authoritarian style.

Table 9. Pearson Correlation Test between infoneuroanalysis of the principal's field of study and their authoritative style

Test statistics	Value
Correlation Coefficient	-0.409
Significance level	0.0001

As shown in the table, the Pearson correlation coefficient between the two variables studied in the whole sample was obtained 0.409% and the significance level of the Pearson correlation test was calculated less than 0.05%. Therefore, in accordance with the Pearson correlation test rule, the null assumption is rejected, and hypothesis 1 can be accepted. It means that there is a significant relationship (significant correlation) between the infoneuroanalysis of the principal's field of study with their authoritative style in the whole sample. As the correlation coefficient is negative, there is a negative and inverse relationship between the infoneuroanalysis of the principal's field of study with their authoritative style.

Table 10. Pearson Correlation Test between infoneuroanalysis of the principal's field of study and their benevolent style

Test statistics	Value
Correlation Coefficient	0.352
Significance level	0.0001

According to the table, the Pearson correlation coefficient between the two variables studied in the whole sample was obtained 0.352% and the significance level of the Pearson correlation test was calculated less than 0.05% (0.0001). Therefore, in accordance with the Pearson correlation test rule, the null assumption is rejected, and hypothesis 1 can be accepted. It means that there is a significant relationship (significant correlation) between the infoneuroanalysis of the principal's field of study with their benevolent style in the whole sample. As the correlation coefficient is positive, there is a direct relationship between the infoneuroanalysis of the principal's field of study with their benevolent style.

Table 11. Pearson Correlation Test between infoneuroanalysis of the principal's field of study and their consultative style

Test statistics	Value
Correlation Coefficient	0.256
Significance level	0.011

According to the table, the Pearson correlation coefficient between the two variables studied in the whole sample was obtained 0.256% and the significance level of the Pearson correlation test was calculated less than 0.05% (0.11%). Therefore, in accordance with the Pearson correlation test rule, the null assumption is rejected, and hypothesis 1 can be accepted. That is there is a significant relationship (significant correlation) between the infoneuroanalysis of the principal's field of study with their consultative style in the whole sample. As the correlation coefficient is positive, there is a direct relationship between the infoneuroanalysis of the principal's field of study with their consultative style.

Table 12. Pearson Correlation Test between infoneuroanalysis of the principal's field of study and their participatory style

Test statistics	Value
Correlation Coefficient	0.372
Significance level	0.0001

As the above table indicates, the Pearson correlation coefficient between the two variables studied in the whole sample was calculated 372% and the significance level of the Pearson correlation test was calculated less than 0.05% (0.0001). Therefore, in accordance with the Pearson correlation test rule, the null assumption is rejected, and hypothesis 1 can be accepted. That is there is a significant relationship (significant correlation) between the infoneuroanalysis of the principal's field of study with their participatory style in the whole sample. As the correlation coefficient is positive, there is a direct relationship between the infoneuroanalysis of the principal's field of study with their participatory style.

5. Discussion and Conclusion

As the results of this research showed, there is a significant relationship between the infoneuroanalysis of the principal's field of study and their leadership style dimensions (authoritarian style, benevolent style, consultative style, participatory style). The regression model shows that in a multiple regression model, the principal's field of study score without the influence of dependent variables is 1.704%. In addition, the change in the standard deviation of infoneuroanalysis of the principal's field of study leads to a change of 0.296% in the standard deviation of the authoritative leadership style and the change in a standard deviation in the infoneuroanalysis of the principal's field of study change the standard deviation of 0.105% in the benevolent style. Likewise, the change in the standard deviation of infoneuroanalysis of the principal's field of study leads to a change of 0.114% in the standard deviation of the consultative leadership style and finally, 0.200% change in the standard deviation of participatory style. According to the results, the independent variable with the standard coefficient of 0.223% had the most positive relationship with the participatory style variable and infoneuroanalysis of the principal's field of study variable had the least positive relationship with the benevolent style variable (0.126%). Also, the variable of infoneuroanalysis of the principal's field of study had a negative impact on the authoritative style variable (-0.307%). The results of this hypothesis are consistent with the results of the studies by Alireza Aghayossefi et al. (2015), Khoshnood (2014), Seyyed Davood Hosseini Nasab et al. (2013), Riyasat et al. (2010), Seifie et al. (2007), Marqi and Scandoora (2012), Choi and Lee (2003). According to the results, the Pearson correlation coefficient between the two variables studied in the whole sample was obtained 0.409% with the significance level less than 0.05%. That is there is a significant relationship (significant correlation) between the infoneuroanalysis of the principal's field of study with their authoritative style in the whole sample. Since the correlation coefficient is negative, there is a negative and inverse relationship between the infoneuroanalysis of the principal's field of study with their authoritative style. It means the more the infoneuroanalysis of the principal's field of study is, the less they are inclined to use an authoritative leadership style and there is a one-sided association. The results of the hypothesis are in line with the results of

studies by Alireza Aghayossefi et al. (2015), Issazadeh Gan Ali (2014), Seyyed Davood Hosseini Nasab et al. (2012) and Shiroudi (2010). Based on the results obtained, the Pearson correlation coefficient between the two variables studied in the whole sample was obtained 0.352% and the significance level of the Pearson correlation test was calculated less than 0.05% (0.0001). It implies that there is a significant relationship (significant correlation) between the infoneuroanalysis of the principal's field of study with their benevolent style in the whole sample. As the correlation coefficient is positive, there is a direct relationship between the infoneuroanalysis of the principal's field of study with their benevolent style. It means the more the infoneuroanalysis of the principal's field of study is, the more they are inclined to use a benevolent leadership style. These results are in agreement with the ones of the studies by Shiroudi (2010), Morteza Narimani Zamanabadi (2008), Ghodratabadi (2005). According to the findings, the Pearson correlation coefficient between the two variables studied in the whole sample was obtained 0.256% and the significance level of the Pearson correlation test was calculated less than 0.05% (0.11%). That is there is a significant relationship (significant correlation) between the infoneuroanalysis of the principal's field of study with their consultative style in the whole sample. As the correlation coefficient is positive, there is a direct relationship between the infoneuroanalysis of the principal's field of study with their consultative style. It means the more the infoneuroanalysis of the principal's field of study is, the more they are inclined to use a benevolent leadership style. These results are in agreement with the ones of the studies by Alireza Aghayossefi et al. (2015), Khoshnood (2014), Seyyed Davood Hosseininezab et al. (2012), Shiroudi (2010), Dooman (2010), Choi and Lee (2003), Nedhermen (1999) and Hermann (1999). As the result indicates, the Pearson correlation coefficient between the two variables studied in the whole sample was calculated 372% and the significance level of the Pearson correlation test was calculated less than 0.05% (0.0001). That is there is a significant relationship (significant correlation) between the infoneuroanalysis of the principal's field of study with their participatory style in the whole sample. As the correlation coefficient is positive, there is a direct relationship between the infoneuroanalysis of the principal's field of study with their participatory style. It means the more the

infoneuroanalysis of the principal's field of study is, the more they are inclined to use a participatory and delegation leadership style. These results are in agreement with the ones of the studies by Alireza Aghayossefi et al. (2015), Khoshnood (2014), Markie and Scandoora (2012), Nedhermen (1999) and Hermann (1999).

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