

Anticipation of Unsafe Behavior of Staff According to Leadership Styles

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ABSTRACT

One of the important items in organizations is safety and health of staff as the most valuable asset of an organization. Depending on the type of organization, the risks threatening the staff are different. The organizations usually prepare arrangements to promote the health of the staff including trainings about individual and occupational safety, attention to the work equipment, work venue and reduction of occupational hazards. One of the very important items which is often overlooked in organizations is to analyze why the staff show unsafe behaviors. In the current study, the effect of aspects of leadership style is investigated using standard questionnaires to be completed by the staff in Aryasol Petrochemical Company. Data analysis in this study was conducted using SPSS software and the results show that there is a significant relation between aspects of leadership style of the staff and the unsafe attitude and behavior of the staff. The obtained outcomes of the study indicated that relation-oriented leadership style reduces unsafe behavior of the staff, while duty-oriented leadership style increases their unsafe behavior.

KEYWORDS: unsafe behavior, leadership styles

INTRODUCTION

One of the important items in organizations is the safety and health of the staff as a valuable capital of organization. According to the type of organization, the risks threatening the staff are different. Organizations usually consider arrangements to promote the health of staff including trainings about individual and occupational safety, attention to the work equipment, work venue and reduction of occupational hazards. One of the very important items which is often overlooked in organizations is to analyze why the staff show unsafe behaviors.

One of the principal duties of human resources management is to protect and maintain qualified staff in an organization. Management is required to provide an environment where the individuals try together and in a group to achieve common goals. One director cannot be successful at work, unless he knows what encourages human beings to make more efforts. The pre-assumption is to have driving factors in organizational duties and roles, to assign individuals to fulfill these duties and roles, and the entire process and leadership style of the organization should be based on awareness of the concept of motivation. Motivation is considered as a process that calculates the intensity, direction and continuity of individuals' attempts to achieve a goal (Robbins, 2005).

Relying on the given explanations, it could be concluded that materialization of organizational goals is based on having motivated and cheerful staff as the most important asset of an organization and this requires due attention to the staff's needs and provision of a safe environment for them to continue their activity.

Former studies regarding leadership styles and unsafe behavior

Latif Khan et al, 2014 investigated the behavior and leadership styles of Petronas Petrochemical Company of Malaysia and the behavioral characteristics of the staff and the degree the safety principles are observed in a study under the title of 'Role of leadership and leaders, staff behavioral characteristics and safe behavior in the maintenance department of Petronas Petrochemical Company of Malaysia'. They showed that there is a significant relation between the extent to which the safety principles that are complied with and the role of leadership and behavioral characteristics of the staff of Petronas Petrochemical Company of Malaysia.

Dexter et al, 2011 conducted a study under the title of 'effect of leadership, development of special safety, safety awareness and risk of system reduction in storage facilities' about the role of management policies and leadership styles to prevent safety incidents and the leadership style of organization to prevent these important incidents. They expressed that increased relation-oriented management style reduces unsafe behavior and results in more compliance of the staff with safety rules and regulations.

Kurkulex et al, 2011 conducted a study under the title of 'leadership and staff and perceived safety behavior in nuclear power plants' about the role of human and individual mistakes to make safety incidents happen and found leadership and management styles effective on occupational satisfaction. They expressed that there is a significant relation between occupational satisfaction of the staff and incidence of human mistakes that lead to safety incidents.

Statement of the issue

Nowadays, the staff is highly educated and the jobs have become more specialized, thus they cannot be made to do tasks as in the past. In the current organizations, participation of the staff in management of organization is required more

than in the past. In fact the change of management style from dictated management to shared management leads to more extensive success of an organization. Leadership style leads to group participation of staff and formation of working groups which brings about effective, efficient, regular and coordinated implementation of the tasks (San Juan, 1998).

Management is in fact coordinating the material and human resources to achieve organizational goals so that it is acceptable to the society (Lambert, 1999). Leadership is considered as the ability to influence others to achieve organizational objectives. In this direction, a leader can use the two main behavioral styles of attention to duty (being duty-oriented) and attention to inter-personal relations among individuals (being relation-oriented).

Fidler suggests that leadership style should correspond to the situational requirements from efficiency point of view. He finds the principal element of leadership influencing others (Mitchell, 1998). Leadership styles are the external symbols of thoughts, demands and personality of directors that are observed and tested by all individuals that have something to do with the organization in practice as a sustainable model. The work-oriented director relies only on his legal duties and is a big obstacle on the way of needs of staff. In bureaucratic management style, great emphasis is put on rules and regulation, hierarchy and official relations and this will give a feeling of self-alienation, emotionlessness to the staff (Mirkamali, 2005).

One of the important items in organizations is the safety and health of the staff as a valuable asset of an organization and this is different based on the type of organization of risks threatening the staff. Organizations usually prepare arrangements to promote the health of the staff including trainings about individual and occupational safety, attention to the work equipment, work venue and reduction of occupational hazards. One of the very important items which is often overlooked in organizations is to analyze why the staff show unsafe behaviors. The raised question here is that whether the unsafe behavior of the staff is predictable according to leadership styles.

RESEARCH METHOD

A research is classified into two quality and quantity types according to the assumptions that a researcher selects and this research is of quantitative type. As far as the goal is concerned, a research is divided into three groups of applied, developmental and basic types. This study is an applied research because its goal is to anticipate the unsafe behavior of the staff of Aryasasol Petrochemical Company according to relation-oriented and duty-oriented leadership styles. As far as data collection is concerned, this study is a non-experimental descriptive study because the researcher does not have the ability and right to control and manipulate the information. Researches are divided into 5 quantitative groups, research works, case studies, correlative and causative-comparative ones. This study is a quantitative research in one hand because the researcher, doing survey studies investigates the respondents' attitude regarding the unsafe and safe behaviors and leadership styles of the staff of Aryasasol Petrochemical Company. On the other hand, since it intends to study the effect of leadership styles on unsafe behavior, it is also considered as a correlative study.

Research hypothesis

There is a relation between leadership styles and unsafe behavior in working environment.

Statistical society, sample volume and sampling method

$$n = \frac{(1/96)^2 \times 0/5 \times 0/5 \times 850}{0/0025(69) + (1/96)^2 \times 0/5 \times 0/5} = 265$$

Since the ratio of sample volume (265) over statistical society (850) is 0.31 and the significance level is more than 0.05, the sample volume is amended according to the following formula.

$$\hat{n} = \frac{n}{1 + \frac{n}{N}} = \frac{265}{1 + 0.31} \approx 202$$

Study of the individual characteristics of respondents

Table 1: Distribution of number of respondents according to their gender

Percentage over authentic responses	Percentage over all	Number	Gender
98.4	92	184	Men
1.6	1.5	3	Women
-	6.5	13	Unanswered
100	100	200	Total

Percentage study population according to sex

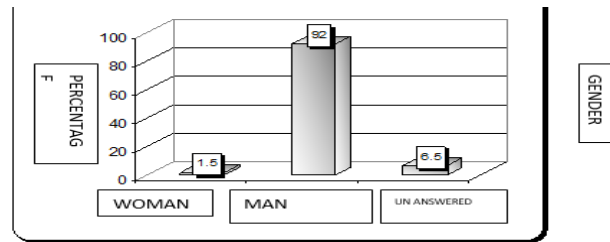


Chart 1: Percentage of individuals under study according to their gender Percentage / Gender
 Women: 1.5% / Men: 92% / Unanswered: 6.5%

Table 2: Distribution of number of respondents according to their age

Percentage over authentic responses	Percentage over all	Number	Age group
26.5	26	52	Under 30 years old
63.8	62.5	125	30-40 years old
9.7	9.5	19	40-50 years old
-	2	4	Unanswered
100	100	200	Total

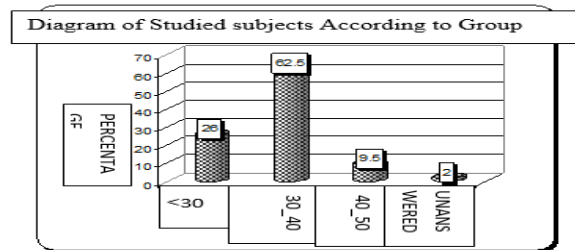


Chart 2: Percentage of individuals under study according to their age Percentage / Age
 Under 30 years old: 26% / between 30-40 years old: 62.5% /
 Between 40-50 years old: 9.5% / Unanswered: 2%

Table 3: Distribution of number of respondents according to their education

Percentage over authentic responses	Percentage over all	Number	Level of education
9.8	9.5	19	Secondary education
12.4	12	24	Associate's degree
68	66	132	Bachelor's degree
8.8	8.5	17	Master's degree
1	1	2	PhD
-	3	6	Unanswered
100	100	200	Total

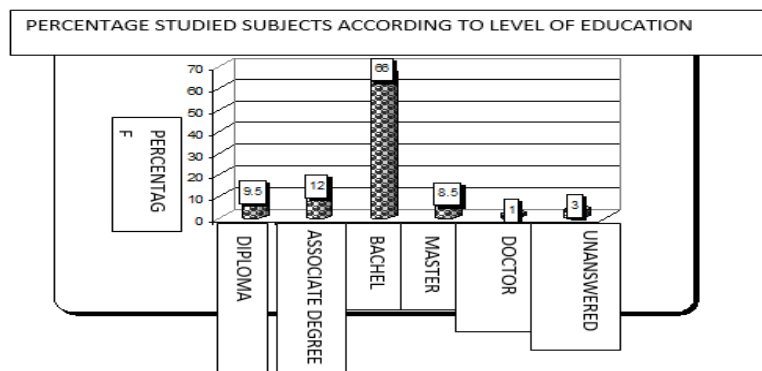


Chart 3: Percentage of individuals under study according to their Level of education
 Percentage / Level of education Secondary education: 9.5% / Associate's degree: 12% /
 Bachelor's degree: 66% / Master's degree: 8.5% /
 PhD: 1% / Unanswered: 3%

Table 4: Distribution of number of respondents according to their years of service

Percentage over authentic responses	Percentage over all	Number	Years of service
67.3	64.5	129	Under 10 years
28.6	27.5	55	Between 10 and 20 years of service
4.1	4	8	Between 20 and 30 years of service
-	4	8	Unanswered
100	100	200	Total

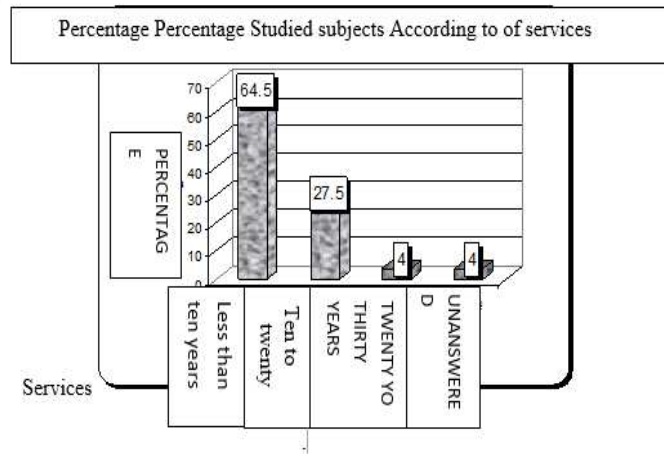


Chart 4: Percentage of individuals under study according to their years of service
 Percentage / Years of service
 Less than 10 years of service: 64.5% / 10-20 years of service: 27.5% /
 20-30 years of service: 4% / Unanswered: 4% /

Methods to study factors in question in hypotheses

Assessment of status of relation-oriented leadership style in the company under study was made using Likert 15-option spectrum. Likert's 21-option questionnaire was used to assess the respondents' view regarding unsafe behaviors in Aryasasol Petrochemical Company.

Methods of data analysis

To analyze data, firstly the information is transferred to the computer using spss software. Data analysis is conducted in two descriptive and inferential statistical parts and in the part of descriptive statistics, using the tables of abundance and similar indicators including minimum, maximum, average, criterion deviance, the data are described. Also to determine the normality of data distribution, Kolmogorov – Smirnov test was used.

In the second part, using Pearson correlation and multi-variable regression, the research hypotheses are tested.

Conclusion

Study of relation-oriented leadership style in Aryasasol Petrochemical Company as far as the studied individuals were concerned

The relation-oriented leadership style in the company under study was investigated using Likert's 15 option spectrum. The results of the study showed that their score of the mentioned spectrum was fluctuating between 21 and 67. Their average score of the mentioned spectrum was 44.6 which is slightly less than the average spectrum score of 45. Thus from respondents' point of view, relation-oriented leadership style in the mentioned company was almost at average level. The obtained z amount from Kolmogorov – Smirnov test was 0.83 which was not significant and showed normal distribution of data.

Table 5: Minimum, maximum, average and criterion deviance of respondents' score to relation-oriented leadership style spectrum

Significance level	Z amount	Criterion deviance	Average	Maximum	Minimum	Indicator Quantity
0.49	0.83	9.6	44.6	67	21	

Study of relation-oriented leadership style in Aryasasol Petrochemical Co.

The results of the study showed that the respondents' score regarding duty-oriented leadership style in Likert's 15-option spectrum was fluctuating between 25 and 60. Their average score of the mentioned spectrum was 46.3 which is slightly more than the average spectrum score of 45. Thus in the company under study duty-oriented leadership style is more frequently used than relation-oriented leadership. The obtained z amount from Kolmogorov – Smirnov test was 0.913 which was not significant and showed normal distribution of data. Table 3.4 indicates these results.

Table 6: Minimum, maximum, average and criterion deviance of respondents' score to relation-oriented leadership style spectrum

Sig	Z amount	Criterion deviance	Average	Maximum	Minimum	Indicator
0.375	0.913	9.44	46.3	60	25	Quantity

Study of respondents' attitude toward unsafe behaviors in Aryasol Petrochemical Co.

To assess the respondents' view regarding unsafe behaviors in Aryasol Company Likert's 21 option spectrum was used. The results of the study showed that the respondents' score was fluctuating between 21 and 69 in the mentioned spectrum. Their average score of the mentioned spectrum was 43.6 which is slightly less than the average spectrum score of 63. Thus from respondents' point of view, unsafe behavior in the company under study was of low frequency. The obtained z amount from Kolmogorov – Smirnov test was 0.61 which was not significant and showed normal distribution of data.

Table 7: Minimum, maximum, average and criterion deviance of unsafe behavior spectrum

Sig	Z amount	Criterion deviance	Average	Maximum	Minimum	Indicator
0.86	0.61	12	43.6	69	21	Quantity

The first hypothesis of study: There is a significant relation between leadership styles/its aspects (duty-oriented and relation-oriented) and unsafe behaviors.

Table 8: Pearson's correlation matrix among variables

Unsafe behavior	Duty-oriented leadership	Relation-oriented leadership	Variable name	
		1	R	Relation-oriented leadership
		199	sig N	
	1	0.185	R	Duty-oriented leadership
	199	0.0009	sig N	
1	0.34	-0.348	R	Unsafe behavior
199	0.000	0.000	sig N	

According to the above table, the results of the hypotheses are as follows:

1. There is a negative and significant relation between relation-oriented leadership style and unsafe behaviors ($r = -0.348$, $sig = 0.000$) and this indicates that the increased relation-oriented leadership will reduce the unsafe behavior. This result can be generalized to the entire statistical society. In this case the research hypothesis is also confirmed.
2. There is positive and significant relation between duty-oriented leadership style and unsafe behavior ($r = 0.34$, $sig = 0.000$) and this means that the increased duty-oriented leadership style increases the unsafe behavior. On this basis, the research hypothesis is also confirmed.

The second hypothesis of study: Unsafe behavior anticipatable considering the type of leadership style.

Table 9: Multi-variable regression test of unsafe behavior according to aspects of leadership style

Sig	Degree of freedom	F	² R	R	Significance level	t amount	B coefficient	B coefficient	Variable name
0.000	2.196	24.5	0.2	0.447	0.000	4.9	-	36.4	-Constant
					0.000	-4.5	-0.295	-0.39	-Relation-oriented leadership style
					0.000	4.4	0.286	0.53	-Duty-oriented leadership style

According to the above table, both relation-oriented and duty-oriented leadership styles have significant role in anticipating unsafe behavior so that the obtained t amount is significant for both variables. According to β coefficients, the equation of effect of relation-oriented leadership on unsafe behavior is negative and the effect of duty-oriented leadership is positive and the effect of relation-oriented leadership style is more than duty-oriented leadership style. These two variables together define 20% of the changes in unsafe behavior ($R^2 = 0.2$). Also according to B coefficients, the equation of one increased unit to duty-oriented leadership style score adds 0.53 to the unsafe behavior score. This is while one unit increase of relation-oriented leadership style reduces 0.39 of the unsafe behavior score. These results are significant at 95% level and could be generalized to the entire statistical society considering the amount of obtained F ($F = 24.5$).

Sum up

According to the obtained results, it could be concluded that organizations, moving from duty-oriented leadership style toward relation-oriented leadership style prepare a safe environment for the staff of organizations by reducing the staff's high risk behaviors that might cause irretrievable safety incidents for the individual and the entire organization. In

this way the organizations achieve their set goals better and quicker and guarantee their ability to compete and their durability in the fluctuating and changing environment of the 21st century.

Conclusion

There is a relation between leadership styles and unsafe behavior in working environment

The hypothesis of this study also showed us that existence of a relation-oriented leadership reduces the staff's unsafe behavior either directly or indirectly and creates a higher safety level of culture in the organization. This means that there is a negative and significant relation between relation-oriented leadership style and unsafe behavior. Relation-oriented leadership, overlooking the strict organizational regulations, assigning power and creating a friendly and peaceful atmosphere in the organization creates high incentive among the staff and this incentive leads to organizational undertaking, compliance with the current culture of the organization and reduction of high risk and unsafe behaviors. This leadership style is precisely against the duty-oriented leadership style. In organizations with modern management, a mixture of these two styles which is known as 'required management' is used. Thus it will have different effects on the staff unsafe behavior and it is necessary to adjust the unsafe cases by special policies. The conclusion that could be made of this discussion is that the leadership based on relation-oriented style increases occupational satisfaction and incentive, and reduces unsafe behavior and creates a healthy atmosphere as far as the staff's psychological health and safety in the work environment are concerned. Also this hypothesis in this research shows us that existence of a duty-oriented leadership whether directly or indirectly increases the staff's unsafe behavior and reduces the level of safety culture in the organization. This style of leadership is based on organizational regulations and low trust in the staff. Duty-oriented leadership believes that all tasks should be implemented according to the regulations and at the set time. This style reduces creativity and innovation in the organization and reduces organizational flexibility which is the requirement of modern world with dynamic changes. This management style is not recommended except in some required cases in the world of today. The outcome corresponds with the outcome of studies conducted by Corocoslo *et al.*, 2011 under the title of 'leadership and staff and safety behavior in a nuclear power plant' that deals with the role of human mistakes in occurrence of safety incidents and leadership and considers management styles equal to job satisfaction and finds the role of human mistakes in occurrence of safety incidents and leadership and management styles on job satisfaction effective and expresses that there is a significant relation between job satisfaction and occurrence of these human mistakes leading to safety incidents. Dexter *et al.*, 2011 conducted a study under the title of 'effect of leadership of special safety development, safety awareness and reduced risk of system in the storage facilities' that found the role of management policies in prevention of safety incidents, as given by Dexter, as the leadership style of the organization important in prevention of these incidents. Nouri, 2001 conducted a study under the title of 'management approach to control the risk factors in work environment'. He studied the risk factors in the work environment. He showed that in order to enjoy a safe work environment, healthy human workforce, the incentive and willingness of the staff are the effective factors on adopting the correct strategy of the organization.

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