

SURVEYING EFFICACY OF ORGANIZATIONAL TRUST DIMENSIONS ON ORGANIZATION INNOVATION (CASE STUDY: PUBLIC HOSPITALS OF ISFAHAN)

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ABSTRACT

The present research surveys the relationship between organizational trust and innovation in public hospitals of Isfahan. Since the innovation has become important greatly specially in governmental organizations and due to this guess and thought which the organizational trust can be an important factor of innovation, this assumption has been formed that there is a significant relationship between organizational trust and innovation in public hospitals of Isfahan. It was used a conceptual model, (Ellonen *et al.*, 2014) which it had been accomplished for studying the role of trust in organizational innovation, in order to survey the relationship. In this research, the organizational trust includes three dimensions such as: lateral trust, vertical trust and institutional trust. Dimensions of dependant variable i.e. Innovation consists of innovation in production, process innovation, behavioral innovation and strategic innovation which it derives from the research (Wang and Ahmed, 2008). The research method is descriptive and of correlation cluster which it has been performed by survey method. The questionnaire included 65 questions that the first 49 questions were related to organizational trust and the last 16 questions were related to innovation. It was used the category-random sampling method which it was collected based on the formula of sample volume. The result of Spearman correlation test represents the high and positive correlation between all dimensions of trust and innovation. As if all statistical secondary purposes were confirmed in %99 confidence levels the results from multiple linear regressions also showed that only two independent variables institutional trust and vertical trust have relationship with dependant variable of innovation. The Institutional trust plays the most share in expressing the variance of dependant variable of innovation having 0/79 determination coefficient. In general, the institutional trust represents with its various dimensions 58/4 percent innovation changes in product, 68/3 percent behavioral innovation changes, 54 percent strategic innovation changes and 74/8 percent innovation changes.

Keywords: *Organizational Trust, Innovation, Lateral Trust, Vertical Trust, Institutional Trust*

INTRODUCTION

It's a long time that ability of an organization in innovation has been recognized as one of the main factors of survival and success (Wang & Ahmed, 2008) and also maintaining the competitive advantage (Wanger & Hansen, 2005). Since public hospitals of Isfahan belong to governmental department and it has less competitive limitations, it seems that it hasn't been felt necessity of existing in an innovative atmosphere. While, it is essential to consider it which today organizations will have no way to compete in an international arena and to maintain the competitive advantage except moving toward innovation in products, processes and their strategies. It seems that one of the main factors that can help the organizational innovation is that the organization managers feel trust toward the staffs and also there's trust between the organization members. As regards, the trust is defined as tendency to accept the risk, it intensifies the staffs' tendency trust to accept the risk and finally, it will lead to more innovation and creativity. It believes that the managers' less defensive behaviors and supervision and the staffs' more enthusiasm for innovation are basic mechanisms through which the trust influences on innovation. So, in organizations which think about the innovation, it will be a valuable attempt to institutionalize the trust in the organization. The vital role of organizational trust has been considered seriously in improving the

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efficiency and organizational effectiveness in organizations having Bureaucracy extensive network and interpersonal and inter-organization cooperation has an increasing importance in them. Trust, efficiency and effectiveness increase the communications, as they improve organizational cooperation and collaboration. The trust has also been introduced as a basic factor to influence the leadership, staffs' satisfaction and commitment and function. Moreover, the inter-organization trust in many organizations that their workforces contradict each other (Ellonen *et al.*, 2014). It's expected that understanding the role of trust and effects of various kinds of organizational trust will have both managerial and theoretical usages on different dimensions of innovation and organizational invention for organizations which emphasize on knowledge. As mentioned, a comprehensive understanding of the effect of various kinds of trust will be valuable on innovation. Hence, the question of the present research is what the relationship is between the organizational trust and the innovation in public hospitals.

The importance of innovation and invention has been expressed for competing with this fact that the innovation product wealth has replaced the source product wealth (Gill, 2009). So, it seems that recognizing various kinds of organizational trust on different dimensions of organizational innovation can be useful for many managers who are seeking to keep the competitive advantage. So, the managers can consider with more care how the organizational trust such as trust based on qualification, benevolence and prestige can influence on different dimensions of organizational innovation. Therefore, combining development of human resources and strategy can be useful to improve impersonal and institutional dimension of the organizational trust, especially when the role of the related trust dimension would be known in innovation and invention of organization (Ellonen *et al.*, 2014). The organization has been more vulnerable than past due to global growing competition along fast technology changes and becoming short the life cycle of the product. Hence, it's an inevitable essence to look for innovation as one of the main factors of success (Mostafa, 2005). Since the public hospitals of Isfahan is of the biggest and the most hospitals in the country and because one of the most important and the most basic mechanisms of creating competitive and relative advantage in dynamic and changeable environment of today industry is to use the innovation improvement systems in products and process and it's essential to pay attention continuously to quality of relationship between staffs and especially the trust between them in order to achieve it. So, it's inevitable to have a complete understanding of how the various dimensions of organizational trust affect on innovation.

The research aims to survey the relationship between various dimensions of organizational trust and innovation in public hospitals of Isfahan which it can be expressed in main purpose and secondary purposes as following:

Main Purpose: surveying the relationship between organizational trust and innovation in public hospitals of Isfahan.

Secondary Purposes: surveying the situation of available trust and organizational innovation in public hospitals of Isfahan, identifying dimensions of effective organizational trust, on innovation in public hospitals of Isfahan, specifying the priority of influence each dimension of organizational trust on innovation in public hospitals of Isfahan, presenting strategies to improve and develop trust in public hospitals of Isfahan. It has been tries to survey the relationship between various dimensions of organizational trust and various dimensions of organizational innovation in this study. The conceptual model of the research has been derived from the study (Ellonen *et al.*, 2014) which they've surveyed the role of trust on organizational innovation. In this research, the trust means an inter-organizational trust which has been categorized in three dimensions lateral trust, vertical trust and institutional trust. The lateral trust means the trust between the staffs of an organization. vertical trust surveys the trust between the staffs and the managers of an organization and institutional trust supervises the trust to strategies, technologies and human resources policies of the organization.

Research Principles

In the research ahead, brief definitions of the used concepts are as following:

*Trust: we believe it that others do the same as we expect them without they are under supervision (Lewis, 2007).

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*Organization trust: it's positive expectations that the people have toward qualification, benevolence and prestige the organization members (Ellonen *et al.*, 2014).

*Lateral trust: it's said to the trust between the staffs of an organization (Ellonen *et al.*, 2014).

Vertical trust: it's the trust between the staffs and leaders of an organization (Ellonen *et al.*, 2014).

*Institutional trust: it's an impersonal kind of trust and it's introduced as the organization members' trust toward strategy and sightseeing of the organization and, technological and business capability, fairly structures and processes and human resources policies (Ellonen *et al.*, 2014).

*Organizational innovation: it's considered to general innovation capability of the organization in presenting new products to the market, or creating new markets through combining strategic orientation with innovative process and behavior (Wang & Ahmed, 2008).

*Product innovation: it means developing products with new services to meet the users' needs or market needs (Wong *et al.*, 2011).

*Process innovation: it means developing or improving the production process basically via modern equipments or operational process reengineering (Wong *et al.*, 2011).

*Behavioral innovation: it's appeared in three levels; individual, team and management. Behavior innovation of an organization can't be evaluated simply by accidental innovation events, but the behavioral dimension must reflect "continuous behavioral change" of an organization toward innovation (Wang & Ahmed, 2008).

*Strategic innovation: it's considered to "re-conceptualization of whatever is related to all business and in turn, it results in various technique of playing the role in existing business" (Wang & Ahmed, 2008).

*Trust: (Ellonen *et al.*, 2014) have presented a classification of organizational trust which it constitutes basis of the present research. They divided the organizational trust in two dimensions: interpersonal (communicative) and impersonal trust. In this study, we survey both kinds of organizational trust i.e. communicative and impersonal trust. Communicative trust can be broken into two dimensions: lateral trust which is related to trust between staffs and vertical trust which returns to trust between their staffs and leaders. The trusts are based on qualification, benevolence and or prestige. Tan & Tan, (2010) considers the trust in supervisors the subordinates' tendency to be vulnerable toward the supervisor or manager's behaviors who can't be controlled his activities.

*Organizational innovation: ideally, the innovation is formed due to need to change and it's defined as follows: "innovation is turning an idea into an outlet, or realizing a concept. Innovation includes continuous new arrangement in inside and outside environment of an organization and (or) an idea so that it can be a tangible, useful and useable idea. Realizing of the idea must be related directly to future financial incomes (Dhami, 2005).

*Product innovation: it means being new, freshness, creativity or understood uniqueness of the product. The understood newness is considered of two aspects: of customers' aspect and of company aspect. Moghimi (2006) considers proportionality (pertinence) as one important aspect of Product innovation. The proportionality has been defined as a measure which a new product be useful or beneficial of some customers' view. The Product innovation has also been considered from other aspects.

*Market innovation: while the product innovation focuses mainly on being newness of product, market innovation emphasizes on market-oriented approaches newness (Wang & Ahmed, 2008).

*Process innovation: technological innovation is surveyed better under innovation adoption process and nature. So, we use the process innovation to improve product and management processes by presenting new production methods, new management approaches, modern technology (John, 1998).

*Behavioral innovation: the behavioral innovation which was depicted by individuals, teams and management, makes possible the formation of innovation culture, internal acceptance of new ideas and innovation. The behavioral innovation is one of basic factors which emphasizes on innovation consequences. The innovation culture plays the role as an innovation catalyst while lack of it prevents from innovation (Wang & Ahmed, 2008).

*strategic innovation: Bao *et al.*, (2011) define the strategic innovation as improvement of new competitive strategies which it creates value for the company. In this study, the strategic innovation

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mainly focuses on evaluating the organization ability to manage the organizational ambitious purposes and identifying the gaps between the purposes and existing resources in order to increase the limited resources creatively.

As said so far, it can be understood that both trust and innovation phenomena are complex and multi-dimensions concepts.

Organization

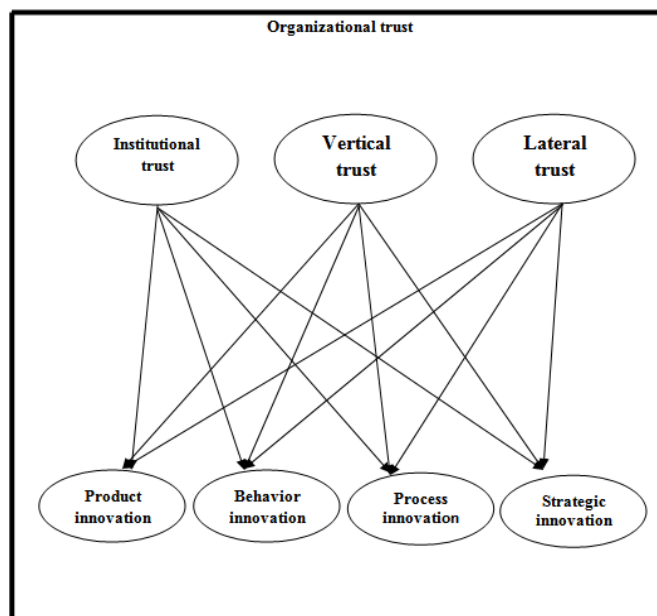


Figure 1: Conceptual model of the research

MATERIALS AND METHODS

In the research, the relationship between variables is analyzed based on the research purpose. In terms of data collection, It's a descriptive research and of correlation cluster which it has been performed by survey method. Due to no variable is changed in the research and a situation and or a series of conditions is described in detail and the information concerns the past time, it's a retrospective and descriptive research and it's a survey research since it has been used the experts' opinions using questionnaire in order to collect data. Also, in terms of purpose, it's a technical research because the research results can be utilized and used by managers, decision-makers and planners. In the research, the organizational trust is an independent variable which includes three dimensions: vertical trust, lateral trust and institutional trust. Also, the organizational innovation is a dependent variable which it consists of four dimensions: product innovation, process innovation, behavioral innovation and strategic innovation. In this research, it has also been used the library studies methods and field researches (questionnaire including demographic questions and research questions) to collect information.

In this research, it has been utilized the content validity method in order to be ensured of the questionnaire validity. Hence, it has been used a standard questionnaire. Meanwhile, it has been utilized Cronbach's alpha method in order to specify the questionnaire reliability. The statistical society of the present research is the staffs of public hospitals in Isfahan.

One of the most difficult and basic steps of each field researches is to specify the sample volume and precision in specifying the sample volume includes conclusion and generalization accuracy. In this research, it has been used the following formula for specifying the sample volume:

$$n = \frac{\left(Z_{\alpha/2} \right)^2 (1 - r^2)}{r^2 d^2}$$

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In which:

1.96, normal number according to confidence level 95 percent ($\alpha = 0.05$) = $Z_{\alpha/2}$

$r = 0.5$, the lowest correlation coefficient of preliminary questionnaire

$d = 0.2$, the error of estimate rate

In this research, it's used two descriptive statistics and inferential statistics methods to analyze the information. The descriptive statistics is utilized to collect and classify demographic data and the inferential statistics is used to reject or confirm the assumption. Used Statistical tests include: Spearman correlation test for specifying correlation rate between independent and dependant variable, multiple linear regressions to survey the influence of organizational trust dimensions on innovation and one-sample mean test for evaluating desirability or undesirability of innovation and trust in statistical society.

RESULTS AND DISCUSSION

The following table represents briefly the result of Spearman correlation test in confidence level 99 percent for secondary purposes.

Table 1: The result of Spearman correlation mutual assumption tests in 0/01 level for secondary purposes

Strategic innovation	Behavioral innovation	Process innovation	Product Innovation		
0/621	0/622	0/659	0/520	Correlation coefficient	Lateral trust
0/000	0/000	0/000	0/000	Sig(significance level)	
0/715	0/808	0/846	0/633	Correlation coefficient	Vertical trust
0/000	0/000	0/000	0/000	Sig(significance level)	
0/679	0/824	0/825	0/724	Correlation coefficient	Institutional trust
0/000	0/000	0/000	0/000	Sig(significance level)	

Fitting the Innovation Linear Model

In this section, it's fitted the organizational Innovation model using multiple linear regressions based on organizational trust variables. So, it has been utilized the step-by-step regression method. In this method, after entering each variable, the model surveys whether a variable must be eliminated or not among the existing variables. But, it's essential to consider it that there is some defaults in each linear regression model before using step-by-step regression method which the regression results are valid providing their accuracy and otherwise, it must be substituted another model. The defaults are:

- 1) errors mean is zero.
- 2) errors variance is fixed despite of being passive.
- 3) errors co-variance be zero.

The above three defaults mean that the errors (residuals) include normal distribution with zero mean and fixed variance (Esmaeiliyan, 2009). Accordingly, first it must be demonstrated the errors include normal distribution with zero mean. In order to survey the assumption of being normality of the errors, it's used Kolmogorov-Smirnov test with testing below assumption.

Since $\text{sig} = 0.393$ and it's larger than 0.05 , so zero assumption isn't rejected and therefore, it can be said the residuals have normal distribution. It can also be used Histograms, P-P and Q-Q diagrams test to survey being normality of the residuals.

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Table 2: results of Kolmogorov-Smirnov assumption test to survey being normality of the residuals

One-Sample Kolmogorov-Smirnov Test

		Unstandardiz ed Residual
N		210
Normal Parameters a,b	Mean	.0000000
	Std. Deviation	.35096619
Most Extreme Differences	Absolute	.062
	Positive	.050
	Negative	-.062
Kolmogorov-Smirnov Z		.900
Asymp. Sig. (2-tailed)		.393

a. Test distribution is Normal.

b. Calculated from data.

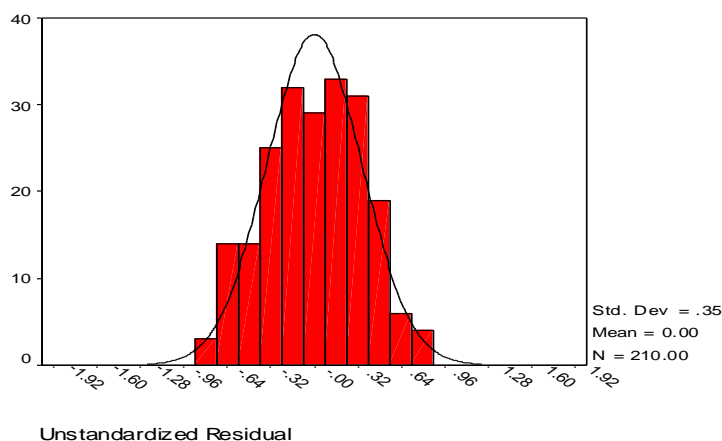


Diagram 1: Histograms diagram of residuals

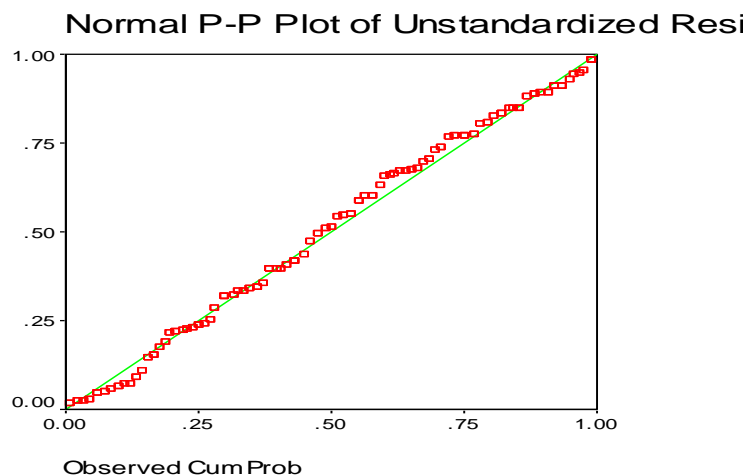


Diagram 2: P-P Plot diagram of residuals

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If all points of diagram be on first quarter bisector, then data will follow the normal distribution completely. The above diagram shows that the residuals have approximately normal distribution.

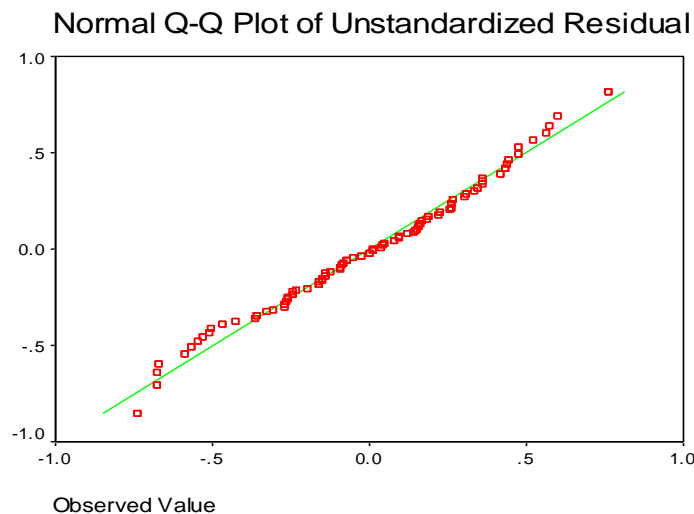


Diagram 3: Q-Q Plot diagram of residuals

If all points of diagram be on a straight line, then data will follow the normal distribution completely. The above diagram shows that the residuals have approximately normal distribution.

In order to survey the default which data mean is zero, it's used mean test of a society. Basically, the statistical assumption will be:

Residuals mean is zero $H_0 : \mu = 0$

Residuals mean isn't zero $H_1 : \mu \neq 0$

The results of one-sample mean test for residuals are:

Table 3: Results of one-sample mean test for residuals

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Unstandardized Residual	.000	209	1.000	.0000000	-.0477448	.0477448

Since $Sig = 1.000 > 0.05$, so zero assumption isn't rejected. Therefore, it can be said with 95 percent confidence that the residuals mean is zero.

After being ensured about the accuracy of all the defaults, it can be used multiple linear regression model. A summary of the regression model is as follows. As the model shows, among various dimensions of organizational trust, first institutional trust and then vertical trust have been applied in the model. R is multiple correlation coefficient, R square is multiple specifying coefficient, R adjust square is modified multiple specifying coefficient. In first stage, only the institutional trust variable has been applied in the

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model, its correlation coefficient amount with innovation variable has been equaled 0/889, and in second stage, by adding the vertical trust variable, correlation coefficient of both independent variables (institutional and vertical trust) with innovation has been equaled 0/894. Also, in first stage, the amount of specifying coefficient equals 0/79. It means that 79 percent of innovation changes are expressed by institutional trust. By adding vertical trust to regression model in second stage, it has been increased to 0/80. It means 90 percent of innovation changes are expressed by tow variables: vertical and institutional trust and remaining 20 percent is related to other factors which it hasn't been considered for the research. The table 10-4 represents it. It can be said that the vertical trust variable has higher priority for influencing on innovation among three independent variables lateral, vertical and institutional trust and then the vertical trust is ranked in next step and the share of lateral trust has been little.

Table 4: Summery of regression model

Standard deviation (Specifying coefficient)	Modified Specifying coefficient	Specifying coefficient (R Square)	Correlation coefficient(R)	model
0/33705	0/789	0/790	.889 ^a	1
0/32994	0/798	0/800	.894 ^b	2

a: predictors: (fixed amount); institutional trust

b: predictors: (fixed amount); institutional trust; vertical trust

c: dependant variable: innovation

we use the variance analysis table in order to survey the assumption of being linear the variance of regression model. The statistical assumptions are written as following:

linear regression is not significant H_0 :

linear regression is significant H_1 :

the results of variance analysis table is as follows:

Table 5: Variance analysis table

Significant level (Sig.)	Statistics F	Squares mean	Degree of freedom	Squares total	Model
0,000	783,980	89,062	1	89,062	1regression
		0,114	208	23,629	residual
			209	112,691	total
0,000	414,102	45,079	2	90,157	2regression
		0,109	207	22,534	residual
			209	112,691	total

Since the obtained Sig amount is smaller than 0/05 ($sig = 0.000 < 0.05$), so zero assumption is rejected and it can be said that it's a linear regression model.

Findings

The results of Spearman correlation test represented a significant and positive relationship between all dimensions of independent and dependant variable and all secondary purposes of the research were confirmed. It was surveyed the influence of independent variable dimensions on dependant variable using multiple linear regression and its linear relationship was estimated. In the following, the results of step-by-step regression test showed that the institutional trust has the most share in expressing innovation changes among various dimensions of organizational trust. In the last section, it was surveyed the

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situation of organizational trust and innovation in expected society using mean test of a society. The research results showed that other dimensions of trust don't have a desirable situation except dimension of lateral trust. Similarly, all innovation dimensions didn't have a desirable situation in statistical society.

Conclusion

The results obtained from descriptive statistics of demographic data represented: the majority of sample individuals have been formed by men. Main part of the research society is between thirty to forty years old, it's clear by comparing individuals' age range and their job experiences, there has been highest employment in comparison with other periods during 5 to 15 years ago.

The results obtained from descriptive statistics of research variables represented: women have more perception of trust in the organization than men, the statistics showed that the trust mean has been reduced by increasing education level, the trust mean has been increased by increasing job experience, the trust mean has been increased by increasing age. Also, the situation about the innovation variables is: as in trust mean, women have more opinions mean toward organization innovation, the same changes of trust mean has a descending process by increasing education level, individuals' opinions mean on innovation has been increased by increasing job experience, individuals' opinions mean on innovation level of hospitals has been increased by increasing job experience.

The results of inferential statistics also showed that there is a significant relationship between lateral trust and product innovation, between lateral trust and process innovation, between lateral trust and behavioral innovation, between lateral trust and strategic innovation, between vertical trust and product innovation, between vertical trust and process innovation, between vertical trust and behavioral innovation, between vertical trust and strategic innovation, between vertical trust and product innovation, between institutional trust and process innovation, between institutional trust and process innovation, between institutional trust and behavioral innovation, between institutional trust and strategic innovation in public hospitals of Isfahan. And finally, it can be accepted the main assumption which there is a significant relationship between organizational trust and innovation in public hospitals of Isfahan. The research achieved the same results by comparing the results of this research with the same previous research like this research (Bao *et al.*, 2008). In their studies, communicative trust causes to influence on innovation in private institutes of China. Since the communicative trust had been specified with two dimensions of vertical and lateral trust in this research, both research results can also be considered the same.

As the test results represented a positive correlation between organizational trust and innovation, so it's presented some recommendations here to promote organizational trust so that finally, it leads to improve innovation in organization.

*Consider the common values in the organization so that the staffs feel sympathy with anyone.

*Employees Promotion system should be in such a way that all individuals and group can promote and advance in organization.

*purposes, missions and functions of the hospitals must be specified for the staffs and must be accepted by them so that they consider the hospitals as part of themselves.

*it must be tried so that the staffs be aware of the hospitals strategies.

Recommendations for other researchers:

*Though, the institutional trust has been considered little on organizational trust, but it was perceived that it plays the most role in innovation. So, it's recommended to researchers to consider more this dimension of trust in future research which actually it's an impersonal dimension of trust.

*The research was accomplished in a governmental organization which perhaps they confronted with some limitations on competition and innovation. It's recommended to achieve the same research in private organizations and its results be compared with governmental organizations.

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