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EXAMINING THE MOTIVATIONS OF EMPLOYEES'S KNOWLEDGE SHARING BEHAVIORS (CASE STUDY, NATIONAL IRANIAN DRILLING COMPANY)

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ABSTRACT
The main objective of this study was to investigate the mechanism of motivations influencing the behavior of knowledge sharing of the employees of the National Iranian Drilling Company and self-determination theory (SDT) is used in this regard. The research is applied in terms of purpose, and regarding data collection, it is descriptive and in terms of analysis, it was based on structural equation methods. The sample consists of 170 experts of National Iranian Drilling Company selected by random sampling method. Measurement tool of the research is standard questionnaire adapted from the study (Wong and Ho, 2015) whose reliability with Cronbach's alpha and construct validity with confirmatory factor analysis were determined. The results indicate that the hard and soft rewards, personal altruism and organizational altruism have significant positive impact on knowledge sharing behavior, in addition, hard and soft rewards as positive controlling motivators, have a significant positive relationship with independence-oriented motivators (personal and corporate altruism).

KEYWORDS: Knowledge sharing, behavior motivation of knowledge sharing, self-determination theory, structural equation

1. INTRODUCTION

1.1. Statement of Problem

With transition from the industrial society to a knowledge-based society and entry into the new millennium, growth engine of organizations is not limited to capital and labor, but the most important strategic resource for development of organizations in the present era is knowledge Lundberg and Lidelöw (2015). In the meantime, one of the challenges facing institutions and organizations is how they can use people's knowledge and intellectual capacity to deal with the problem-solving processes, enhancing knowledge, improving personal skills and increasing their task quality (Goh, 2002). Research shows that the knowledge that is collected and stored by people has strategic value only when its sharing, combining and using in the organization is done in a unique way.

To be more precise, a fundamental tool in order to use knowledge, innovation and its application in the organization, and ultimately getting competitive advantage is knowledge-sharing Pei-Lee The & Hongyi Sun (2012). Knowledge sharing is the behavior of transfer of knowledge to the participants in the communication process within or outside the organization. Here, knowledge means the knowledge that the person has gained in the organization Chiu and Chen (2005), and it can be said that it is an issue about the interaction concept between people, which is carried out as a communication process between two or more people to improve and develop the knowledge Vina Shabrinaa, Anita Silvianita(2015). On the other hand, knowledge sharing requires the willingness of individuals and groups in the organization to share knowledge in order to achieve mutual benefit, and knowledge sharing would not occur unless the staff and working groups have a high level of cooperative behavior (Roland, 2000). It is often assumed that employees' knowledge sharing behavior is very similar to many other voluntary behaviors such as help, cooperation and organizational citizenship behavior (Free, 1993; Lyne, 2007). According to Motowidlo and Brief (1996) organizational citizenship behavior includes acts such as helping, sharing, is giving and volunteering. These behaviors like sharing knowledge can be conducted in person or any organization. In fact, sharing knowledge is often an issue in the area of management structures, incentive and reward structures while organizational citizenship behavior is a behavior extra to

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people's in the organization that does not get reward (Konenle, 2000). Therefore, to explain knowledge sharing behavior motivation theory is needed that according to the previous research, it can be used in predicting such behaviors, because it can be used as a tool to extract motivation, increase and sustain knowledge sharing behavior among employees (Eze et al., 2013; Fathi et al., 2011, Fong et al., 2011; Ibrahim et al., 2015). According to studies done on the field, SDT that deals with the quality of motivation satisfies this need. Previous models of knowledge sharing motivation have dealt with extent of motivation. Therefore, studies related to motivation quality are often rare (Gunn, 2009). In particular, independence driven motivations that are suggested by SDT are often overlooked or wrongly merged with control-oriented motivations in knowledge sharing studies that take cost-benefit approaches (Gangeswari et al, 2015).

According to this theory, motivation is a spectral where intrinsic motivation on one side and extrinsic motivation is on its other side. In intrinsic motivation person does his job with interest and joy. On the contrary, it is lack of motivation where the person to does not have any incentive to do the work. Between the lack of motivation and intrinsic motivation, there is the extrinsic motivation, where a motivation of external rewards in intended (Noour & Hubbar, 2015). By identifying individual motivational factors and predicting conditions that could have the effect of strengthening theses motivational factors, this theory is able to offer optimal motivational solutions and the provision of basic mental stimulation needs helps the inner motivation share knowledge.
Therefore, studying motivational behavior theory is of great value in knowledge sharing of the staff within multi-dimensional theory of SDT. This study, especially in the National Iranian Drilling Company, where promotion of the knowledge of the company and creating new sources for the company is of the necessities of taking advantage of management in this organization, is of double value.
Therefore, considering the importance of the issue and lack of research in this field, in this study, we examine the behavioral motivations of knowledge sharing of staff of National Iranian Drilling Company inspired by the research by Wang and Hu (2015) and it is expected that this research theoretically:

- ✓ Adds to the existing knowledge in the field of motivational theories related to increase knowledge sharing
- ✓ Introduce the use of SDT in explaining the quality of behavioral motivators of knowledge sharing.
- ✓ Based on the results of research, practical suggestions for knowledge sharing are offered to National Iranian Drilling Company employees.

And in methodology and practical part of the research it is expected that:

- ✓ Structural model based on structural equation modeling technique to study the behavioral motivators of sharing knowledge in light of SDT.

2. The conceptual framework of the research model

Knowledge sharing that is as a knowledge sharing or dissemination activity (including explicit and implicit knowledge) from a person, group or organization to someone else (Huang et al., 2015) that is one of the stages of knowledge management, which provides opportunities for the maximum bringing to the organization to meet their needs, increase efficiency to solve problems and achieving competitive advantage. Studies carried out show the direct impact of employees' knowledge on the competitive advantage, sales growth, market share, profitability and added value of each employee, improvement in productivity and communications (Huang et al., 2012; Mesmer-Magnus and DeChurch, 2009; Wang and Wang, 2012). Due to this, examining the effective factors in the behavior of knowledge sharing to take advantage of these benefits is of utmost importance.

In this regard, reviewing the previous research shows that factors influencing knowledge sharing can be categorized into three groups. First, the corporate culture is a key element in knowledge sharing McDermott and O'Dell (2001). According to a study by McDermott and O'Dell in organization with a culture of knowledge sharing, employees share ideas and views, because they see it as the nature of work rather than as something they are forced to do. Secondly, knowledge sharing is continuously associated with exchange of knowledge through technology capability. The ability of information technology in increasing available knowledge base to all staff and offering the possibility of working together enable the organizations to increase employee performance and organizational capabilities in the policy of the knowledge-sharing.

Finally, based on a process perspective, the researchers study knowledge sharing from the aspects of intention and motivation, behavior that occurs during the process and results of the continuous knowledge sharing determined by the performance (Fang, Tsai and Chang, 2005).

In this context, it should be noted that the emphasis of management and enforcement of traditional knowledge was on information technology that can effectively process knowledge and practice. However, the new model of knowledge management focuses on people and their actions, and its aim is creating an environment where knowledge is in power sharing and not in keeping it. In addition, the texts sharing of knowledge in the field of information technology and corporate culture is rich and varied. Although the accumulation of research on knowledge sharing has provided a useful insight, little formal analysis of the impact of motivation on employee knowledge sharing behavior exists and few studies attempt to integrate knowledge sharing behavior described by the use motivational theories.

In the past, most of the studies offered sharing of knowledge in the form of reasoned action (Fishbein and Azhen, 1991), or the theory of planned behavior (Azhen, 1991). Azhen and Fishnein designed their model to predict and explain the behavior on the grounds that first, people base their decisions on available rational information, and secondly, people consider the results of their performance before decisions. Then considering the limitations of the model in behavior not under voluntary control of subjects, by adding perceived behavior control variable on the actual behavior of knowledge sharing through motivation, they offered the planned behavior model (Gangeswari , 2015)
The theory of planned behavior compared with the theory of rational behavior as has the ability to predict and understand the impact of incentives on behavior that is not under the control of the individual has more advantage (Nur Wening Mugi Harsono, 2014).

Previous models of motivating knowledge sharing have dealt with the issue from the perspective of the extent of the motivation and therefore studies related to motivation are often rare (Gunn, 2009). In particular, the independence-oriented motivations offered by SDT theories (Gangsvary et al., 2015). Self-determination theory focuses on different kinds of motivation in people rather than their values and has classified motivations into two external and internal motivations (Noour & Hubbard, 2015). Wang and Hu (2015), in their study, suggested hard and softrewards, personal vested interests and institutional self-interest as the motivations for knowledge sharing behavior within the framework of independence-oriented and control-oriented incentives based on SDT. According to the novelty and comprehensiveness of their investigation, after consultation with the professors and carrying out the needed investigations the model of the mentioned research was used in this, and the research model was analyzed as shown in Figure 1.

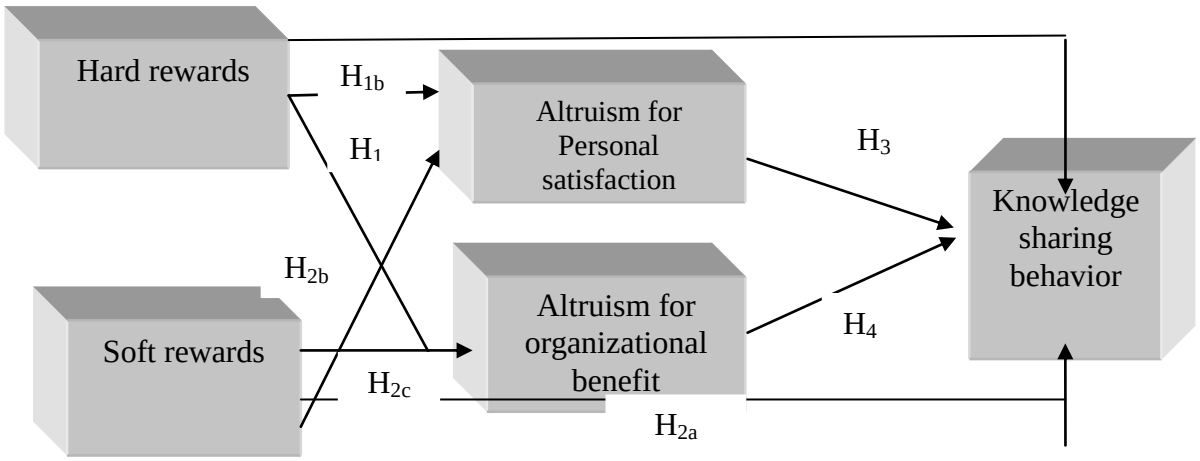


Figure 1. Conceptual research model

In further explaining the model, it should be noted that in a lot of research reward and motivators are vital factors which lead to knowledge sharing between employees. Lack of reward creates an unpleasant environment as a result of which a reduction in employees' efforts is created and they may get out of their jobs (Chiang and Birtch, 2008). According to research by Han et al. (2015), Lee and Han (2014), Svetlana Šajeva (2014) to participate in knowledge sharing, employees need strong motivators. Is not realistic to think that no matter what employees receive, they will share their knowledge, the rewards may be hard or soft. Soft rewards are intangible rewards that are provided and controlled by a company. Employees' benefits are not necessarily financial (Yong Sauk Hau *et, al*, 2013). Gunn (2009), in his research shows that softrewards as a result of the behavior of knowledge sharing, may require satisfy the employees in terms of social acceptance in the enterprise .Pending the outcome of workers, including improved working relationships with others and competency can be considered as a form of soft reward that has a positive relationship with intention and behavior of knowledge sharing (Bak and Kim, 2002). Andressen and Deperz (1998) argued that intrinsic rewards from work alone get the experts to share their knowledge (Wong and Ho, 2015). It is found that that both hard and soft rewards have positive special effects on organizational knowledge, knowledge dissemination and use of knowledge management activities (Goh, 2006; Yu *et al*, 2004). In the model of the study by Hu and Wang (2015) the concept of altruism is introduced, in the workplace, people whose needs are satisfied well, show altruism and good behavior while others with no satisfaction needs perform destructive behavior (Chou and Tsai, 2004).

Oregon introduces altruism and self-sacrifice as voluntary behaviors that help special people in performing their tasks and solving organizational problems. Knowledge sharing is probably motivated by a desire to help others (Davenport and L. Prusak, 1998; Constant, 1996). Previous research suggests that employees are intrinsically motivated to contribute to the knowledge because of participation in intellectual issues, problem solving is either challenging, or desirable, and they enjoy helping others (Wasko and. Faraj, 2005). In the model, the relationship between a variety rewards and personal and organizational profit seeking is measured. These assumptions are related to the difference between self-motivation and controlled motivation in self-determination theory.

A behavior is autonomous when it is acompanied with a sense of determination and having a choice in the decision to start (Gagan and Deci, 2005). Autonomy refers to the tendency of individuals to freely pursue their activities and their role is and the will of the person in doing the job (Roca and Gagan, 2008). Autonomy is when the person himself knows himself as the cause and involved in the outcome of their work. hard rewards are related to something outside of oneself. Accordingly, the hard reward is a means and a tool in the hands of authorities, to better lead employee's behavior by establishing mechanisms to receive them. Softrewards probably make the people feel that, by implication, they are under control and pressure to show behavior that are related to the implications associated with that behavior, and therefore it is relatively a form of controlled external motivation. Devotion to organizational benefits is defined as the people's assessment of the positive impact of their efforts in altruistic knowledge sharing behavior in their organization, (Shiv et al., 2006) and is considered as a form of motivation is relatively independent-oriented motivations (i.e. defined rules). In addition, the devotion to personal satisfaction is as innate pleasure in seeing the positive results of one's efforts in altruistic knowledge sharing behavior (Hall, 2011) and is considered as a form of independence-oriented motivations.

2. MATERIALS AND METHODS

2.1. Research Methodology

In terms of purpose, the research is applied because by using the available knowledge, it is tried to help the National Iranian Drilling Company managers in decision-making in a particular area (motivating knowledge sharing stimulating behavior). Based on the data collection method, it is a descriptive-survey study. Based on the analysis type, it relies on structural techniques and regarding time, it is cross-sectional.

2.2. Population and sample

The target population is all the experts of the National Iranian Drilling Company. Based on this total number of experts is 288 people.
Sampling method: is simple random sampling (probability sampling methods).
The sample size: in this study using Cochran formula (as follows), the sample size has been set:

Presumptions: Error level: 5% p, q = 0.5 z=1.96

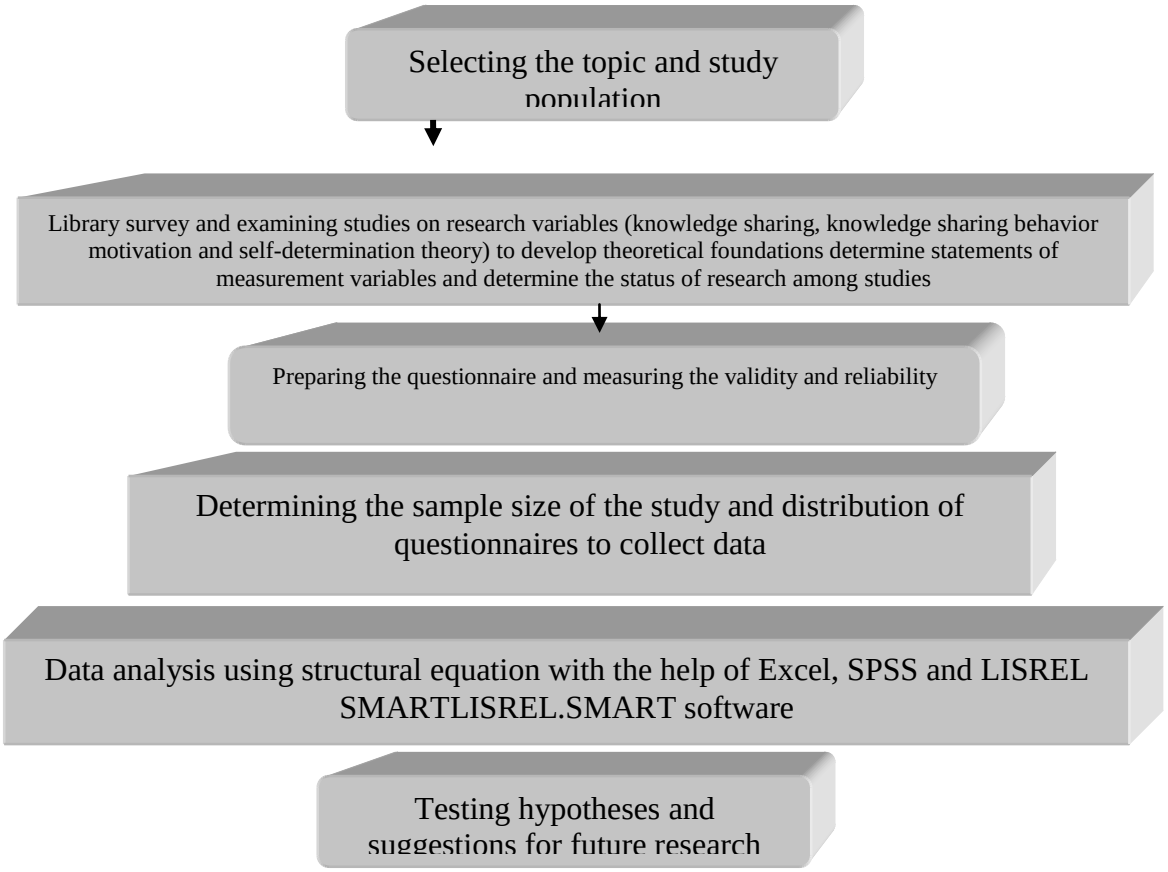
$$n = \frac{\frac{z^2 pq}{d^2}}{1 + \frac{1}{N}\left(\frac{z^2 pq}{d^2} - 1\right)}$$

Based on this, the total volume of sample is 165 people, but with the possibility of confounding questionnaires 205 questionnaires were distributed, of which 170 questionnaires were analyzed.

3.2. Methods and tools for data collection

The data collection was conducted in two parts, firstly using library resources, necessary theoretical information was collected. In the second phase through the distribution of Hu and Wang (2015) questionnaires, quantitative research data was collected in person from the sample. To test the validity of the questionnaire, the validity of the questionnaire approved by the supervisor and technical specialists and using confirmatory factor analysis construct validity was determined. Moreover, for testing the reliability, Cronbach's alpha coefficient was calculated, whose results are given on the table below:

Given the output that is greater than 0.7, the reliability of the questionnaire is desirable and overall research process is based on algorithm 1.



3 .RESULTS

3.1. Descriptive findings of the research

According to the related descriptive statistics 28 people, i.e. 16% of respondents were female and 142 were male. In describing academic degree, it turned out that people with a bachelor are 112 people. People who have a master's degree or higher are 58 persons. Descriptive statistics on work experience also showed that 25 people have less than 5 years of work experience, which is 15% of the total sample volume, 53 people between 5 and 10 years of service, 59 people 10 to 15 years of work experience, which is 35% of the sample, 33 of the respondents have more than 15 years experience, which is 20% of the samples.

3.2. Inferential findings

3.2.1. Step One: normality test of data

In the first test data normalization is done. For this purpose, the Kolmogorov-Smirnov test is used. While data normalization, the null hypothesis is tested based on the normal distribution of the data at 5% level. Therefore, if the significant amount is obtained as greater than or equal to 0.05, then there will be no reason to reject the null hypothesis. In other words, the data is normally distributed. Normal distribution assumption was tested at a significance level of 5%. In confirmatory factor analysis and modeling of structural equations, there is no need for the normality of all data, but major variables should be normal (Kline, 2010).

Table 1. Data normality test (Kolmogorov-Smirnov)

	Hard rewards	Soft rewards	Personal profit-seeking	Organizational profit-seeking	Knowledge sharing behavior
N	411	411	411	411	411
Average	4.047	3.666	3.873	3.883	3.903
SD	0.535	0.621	0.558	0.591	0.616
Kolmogorov-Smirnov	3.998	2.050	2.781	3.733	3.665
Significance	0.231	0.476	0.823	0.231	0.213

Table 1 shows, in all cases significant amount is greater than 0.05. Data distribution is normal and parametric tests can be used.

3.2.2. Second stage: confirmatory factor analysis of the research

To examine the hypotheses based on a questionnaire scale, first the accuracy of the used scale must be approved. Therefore, confirmatory factor analysis is used to test the relationship between latent variables with buoy-assessment. Confirmatory factor analysis was performed by using LISREL software version 8.8 .Confirmatory factor analysis studies the relation of items (questionnaire questions) with the structures. In fact, unless it is proven that the questions of the questionnaire measure the latent variables well, hypotheses based on questionnaire data cannot be used. So in order to prove that the data is correctly measured, confirmatory factor analysis is used. The strength of the relationship between factor (latent variable) and visible variable is shown by load factor.

Load factor is a value between zero and one. If the load factor is less than 0.2, relation is considered poor, and it is discarded. Factor load between 0.2 to 0.6 is acceptable and if it is greater than 0.6, it is very desirable (Kline, 1998). The minimum acceptable factor load in some references is listed as 0.2, but the main criterion is to judge is t-statistic. If the test statistic that is t-statistic is greater than the critical value $t_{0.05}$ that is 1.96, then the observed factor load is significant. Factor analysis results of the knowledge-sharing measure are presented in the figure. In this study 5 factors (latent variables) and 18 questions (observable variables) are used. Each of these variables with the index $Q_{\_01}$ to Q_{18} is

displayed in the figure. Load factor observed in all cases is of a value greater than 0.3 indicating that the correlation between latent variables (aspects of each of the main ingredients) with observable variables is acceptable. After the correlation is identified significance test is used .To determine the significance of the relationship between the variables statistic t-value is used. As a significant error of 0.05 is considered, so if the test statistic t-value is greater than the critical value 1.96, the relationship is significant. According to the results of indicators used to measure each of the scales, the statistic t-value at a confidence level of 5% of is greater than 1.96, indicating that the observed correlations are significant.

Table 2 - Summary of the results of confirmatory factor analysis of variables

Aspects	Indices	Load factor	T statistics	Average	SD	Cronbach's alpha
hard rewards	Q01	0.49	6.09	4.45	0.51	0.736
	Q02	0.40	4.78	4.12	0.40	
	Q03	0.49	6.10	4.03	0.49	
	Q04	0.71	9.12	3.76	0.51	
Soft rewards	Q05	0.72	8.56	3.69	0.62	0.779
	Q06	0.52	6.27	3.69	0.84	
	Q07	0.39	4.52	3.58	0.81	
	Q08	0.37	4.34	3.63	0.80	
Organizational altruism	Q09	0.65	5.74	3.45	0.91	0.787
	Q10	0.55	5.17	3.48	1.13	
	Q11	0.32	2.12	3.52	0.94	
Personal altruism	Q12	0.50	5.34	3.83	0.85	0.754
	Q13	0.54	6.90	3.67	0.66	
	Q14	0.89	10.62	3.86	0.65	
Knowledge sharing behavior	Q15	0.76	10.25	3.87	0.54	0.804
	Q16	0.64	8.78	3.78	0.48	
	Q17	0.56	5.97	3.87	0.68	
	Q18	0.59	7.30	3.60	0.63	

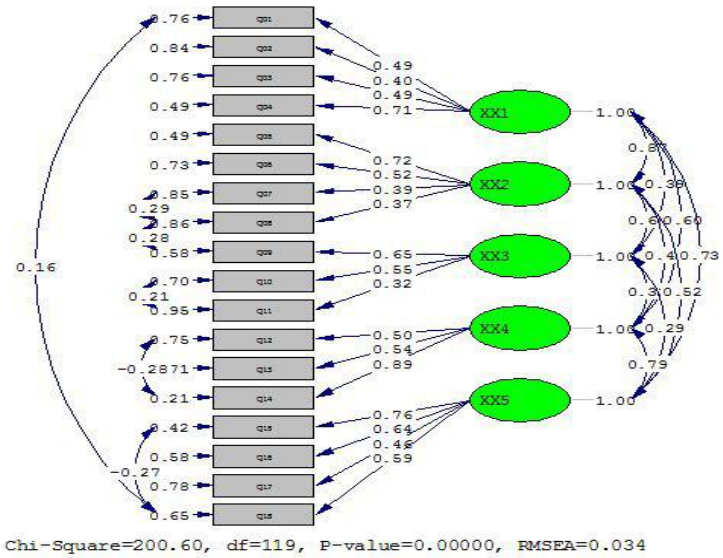


Figure 2. The standard factor load; the relationship of items and structures of the research

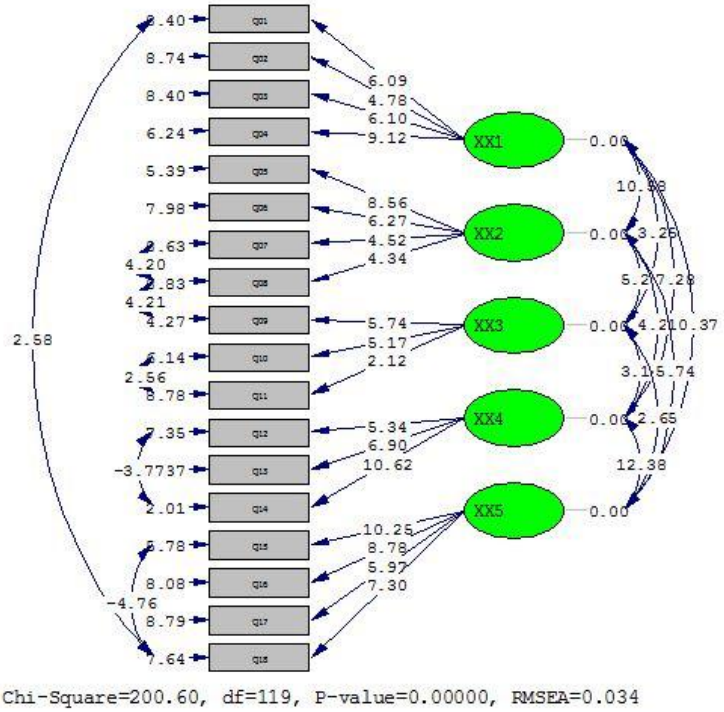


Figure. 3 the relationships of the items and research test structures

In confirmatory factor analysis goodness of fit is also important. One of the basic factors to account for the free parameters in calculating fit indices is normal chi-square test, which is calculated by dividing simple chi-square to degrees of freedom. If this value is between 1 and 5, it is favorable (Schumacher and Lomax, 1988, 88; Kline, 2005: 59). In this study, chi-square is obtained as 1.685.

$$x^2/_{df} = \frac{200.60}{119} = 1.685$$

RMSEA index is used in confirmatory factor analysis and structural modeling equations as a main fitness indicator. If the index is smaller than 0.05, it is desirable. In the saturated model of the present study, RMSEA index is obtained as 0.034 showing the desirable fitness of the model. Other indices of goodness of fit were in the appropriate range.

Table 3. Indices of goodness of fit (confirmatory factor analysis)

Fitness index	SRMR	RMSEA	GFI	AGFI	NFI	NNFI	IFI
Acceptable values	<0.05	<0.1	>0.9	>0.9	>0.9	>0.9	**0 - 1**
Calculated values	**0.019**	**0.034**	**0.96**	**0.96**	**0.98**	**0.98**	**0.96**

3.2.4. Step Three: Testing the hypotheses:

To evaluate the research hypothesis, structural equation modeling is used to assess the relationship between variables. The final model is presented in Figure 4. This model is based on the output drawn from LISREL software.

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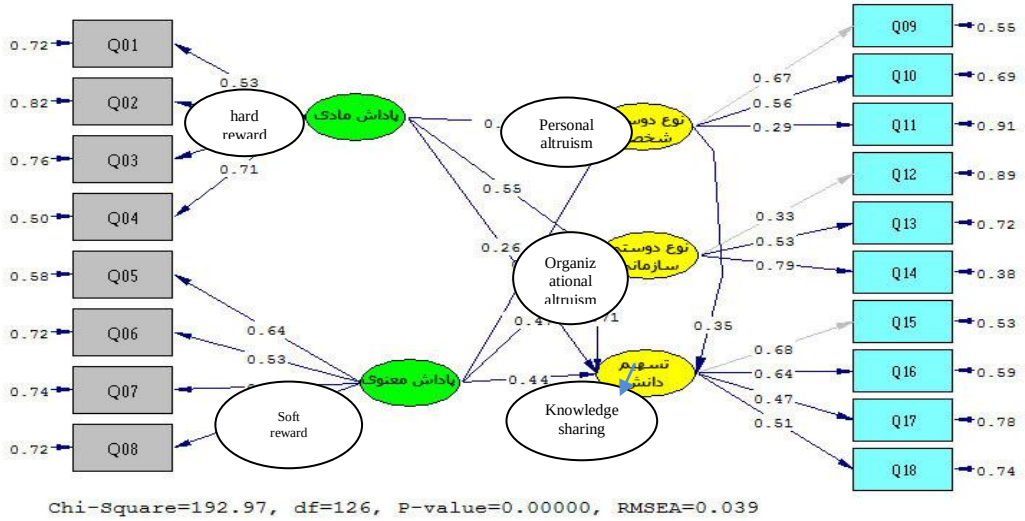

Figure 4- Standard factor loadings of testing hypotheses

The summary of results of the testing hypotheses is presented in Table 4:

Table 4 summary of the results of testing hypotheses

Independent variable	Load factor	T statistic	result
hard rewards have a positive and significant impact on knowledge sharing behavior	0.26	2.18	Confirmed
hard rewards have a positive and significant impact on organizational altruism	0.55	2.56	Confirmed
hard rewards have a positive and significant impact on personal altruism	0.34	0.57	Confirmed
Soft rewards have a positive and significant knowledge sharing behavior	0.44	3.70	Confirmed
Soft rewards have a positive and significant impact on organizational altruism	0.47	3.76	Confirmed
Soft rewards have a positive and significant impact on personal altruism	0.77	5.02	Confirmed
Organizational altruism has a positive and significant impact on knowledge sharing behavior	0.71	3.23	Confirmed
Personal altruism has a positive and significant impact on knowledge sharing behavior	0.35	0.30	Confirmed

In this analysis, the impact of hard and soft rewards on personal and organizational altruism and their interaction were assessed on knowledge sharing. Structural equation modeling analysis has shown both hard and soft rewards influence organizational altruism. Also soft has an impact on personal altruism. In addition, soft rewards and organizational altruism have impact on knowledge sharing within the organization.

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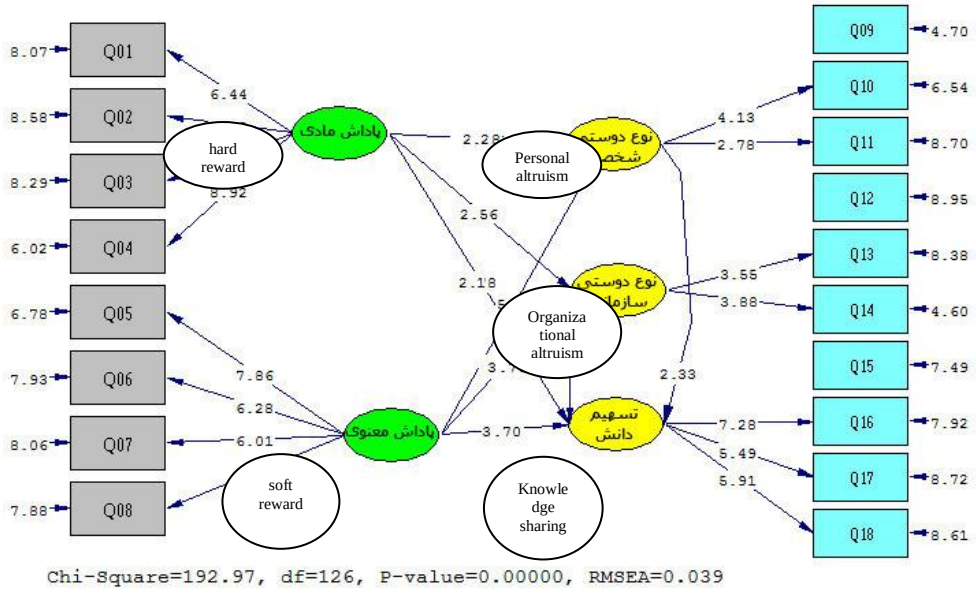

Figure 5 - Statistic t-value testing research hypotheses (knowledge sharing)

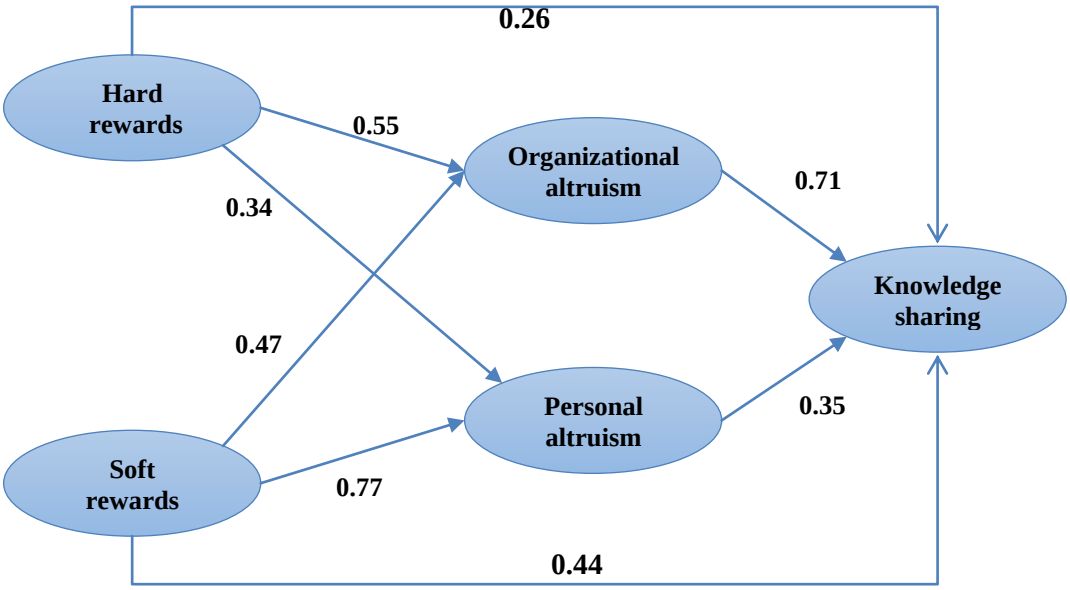

Figure 6. The results of confirming the final research model

4. CONCLUSION:

Vital knowledge that employees have is not always available to those who need it. Accordingly, organizations should look for effective mechanisms to encourage employees to share knowledge to increase knowledge and competitive advantage (Sheng- Louis Yi-Shih Lo, 2015). According, in this study, we explored the behavioral motivations of knowledge sharing in the employees of National Iranian Drilling Company within SDT theory framework to determine knowledge sharing behavior of employees in the National Iranian Drilling Company is influenced by what motivations.

The results indicate that the hard and softrewards, personal and organizational altruism have a significant positive impact on the behavior of knowledge sharing. In addition, hard and softrewards as control-oriented motivators have a positive and significant relationship with independence-oriented motivators (personal and organizational altruism).
This result is utterly consistent with findings of Wang and Hu (2015) and with results of Andressen and Deperz (1998) who argued that the intrinsic rewards of work itself force experts to share their knowledge. In addition, Vasco and Faraji (2005) experimentally demonstrated that benefiting is positively correlated with knowledge distribution.
Cabrera et al (2006) in their study concluded that the employees who receive more intrinsic rewards for knowledge sharing are more willing to share their knowledge. Leine (2007) also practically demonstrated that mutual benefits positively affect intentions and attitude toward knowledge sharing. Javernick- Will's classified main motivator for knowledge sharing into four main categories: resources, altruistic intentions, external rewards and social motivations (Landbrg and Lidlou, 2015). Argote, McEvily & Reagans (2003) also noted that the existence of rewards and incentives for knowledge management is very important. For example, in companies such as Siemens and Xerox, people are directly encouraged for their cooperation and sharing their specialized knowledge (Sunderasen & Zhang, 2004). Of course, it should be noted that if rewards and incentives only have hard aspects will promote competition among employees, so managers should pay attention to spiritual motivators such as polling workers and their participation in decision making that will have more consistency and create intrinsic motivation (Goh, 2002). Although previous studies of knowledge have studied many motivating factors to interpret and explain the behaviors associated with sharing knowledge, the concept of the differences between these stimuli, as previously discussed, is doubtful and the incongruous. Moreover, in a similar way to knowledge sharing studies, several studies that accept self-determination theory show that self-determined motivation plays a more important role in facilitating knowledge sharing behavior in various fields than controlled motivators. (Wang, 2015; Gangeswari, 2015; Lin, 2007; Hou, Haua 2013). This approach enables us to study the qualitative concepts of the shown motivators in SDT theory, to assess the impact of both control-oriented motivation and independence-oriented one on knowledge sharing behavior of employees and the differences between the effects.

So that by proper realization of the relationship and the effect of motivation on knowledge sharing behavior of the employees and taking into account the relationship between motivational factors of knowledge sharing behavior, managers get the opportunity to plan and manage more appropriate measures to promote the sharing of knowledge in order to achieve competitive advantage. According to these results, the managers of the National Iranian Drilling Company are recommended to pay more attention to important factors such as meaningful and efficient design jobs, appropriate workload, supportive colleagues and supervisors, sincere attention to the welfare of employees, opportunities for career advancement, and the justice process. In general, with respect to the capabilities of organizations and individuals, it is better that management theorists to change their look from hard and complex organizational approach such as organizational structure, planning and strategy that require great expertise, to soft approaches such as organizational culture, social relations, attention to norms and organizational citizenship behavior that are more shared among the people in the organization, are focused more on the various aspects of these concepts, to promote knowledge sharing between individuals and organizations and working groups. For the future studies, the researchers are suggested to study the application of SDT theory from other views in knowledge sharing including checking the satisfaction of three basic psychological needs of understanding of autonomy, understanding the sense of competency and belonging that are effective in internalizing motivation and are of important elements of self-determination theory.

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