Reward System and Knowledge Sharing Behavior among Iranian Academics: Preliminary Survey Findings

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Abstract

Knowledge sharing is one of the most important elements in organizations' knowledge management initiatives. This paper examines the influence of the reward system on knowledge sharing behavior with two dimensions—explicit and implicit. Using regression analysis with data from 110 lectures at top universities in Iran, ranked by the Ministry of Higher Education in 2009, the results show a significant relationship between reward system and knowledge sharing. For explicit knowledge sharing, intrinsic reward ($\beta = .457$, $p < .01$) is statistically significant and positively associated with explicit knowledge sharing, whereas extrinsic reward ($\beta = -.185$, $p < .01$) is statistically significant but shows negative association with explicit knowledge sharing. Intrinsic reward ($\beta = .344$, $p < .01$) is statistically significant and positively associated with implicit knowledge sharing, whereas extrinsic reward ($\beta = -.210$, $p < .01$) is also statistically significant but shows negative association with knowledge sharing behavior. This paper further examines the implications of the findings

Keywords: Intrinsic reward, extrinsic reward, implicit knowledge sharing, explicit knowledge sharing, academics, Iran.

Paper type: Empirical Paper

1. Introduction

In the "new economy", the way in which organizations acquire, use, and leverage knowledge have become a major business driver (Ling et al., 2009). Knowledge management activities include knowledge creation, storage and distribution, and learning and sharing (Fang et al., 2005). Nowadays, knowledge management (KM) is recognized as an important capability that holds the key to competitive advantage for many practitioners and academics. Researchers have argued the most important part of KM is that individuals are the prime mover of knowledge creation in an organization (Nonaka, 1994). Knowledge sharing among individuals is critical in assisting in knowledge creation in the organization. Nahapiet and Ghoshal (1998) suggested that creating and transferring knowledge among individuals could develop organizational knowledge. Hence, many companies and scholars are interested in the factors that enhance knowledge sharing within organizations. However there are obstacles to knowledge sharing. Employees may hoard unique knowledge to secure their positions for internal rewards and promotions in today's intensely competitive organizations (Menon and Pfeffer, 2003).

Organizational reward systems should motivate employees to create new knowledge, share the available knowledge, and willingly help other employees in different divisions. There is much empirical evidence to suggest that organizational rewards influence the behavior and performance of an organization's members (Maltz and Kohli, 2000).

Research has highlighted that the benefits of knowledge management in higher education outweigh the negatives. To keep pace with technology development and maintain academic leadership, all academic institutions have to consider applying KM methods (Kidwell et al., 2004). In developing countries like Iran, knowledge sharing also plays a key role in knowledge management in educational institutions. An individual's knowledge does not have much impact on the organization unless it is made available to other individuals (Nonaka and Takeuchi, 1995). Therefore, determining which factors promote or impede employee tendencies to engage in knowledge sharing behaviors is important.

Successful knowledge sharing involves many factors and further research is needed to identify which factors are most effective in fostering knowledge sharing. One factor that influences knowledge sharing is reward systems. While previous studies have indicated the

importance of reward systems in KM, there is insufficient analysis of the role of this factor in higher education and specifically higher education in Iran. This paper explores the relationship of reward systems on knowledge sharing behavior through the analysis of the effect of reward systems to support or restrain academic knowledge sharing behavior at the University of Iran.

2. Literature review and model

2.1 Knowledge Sharing

Knowledge sharing behavior has been an important topic for investigation by researchers and practitioners, determined by the volume of relevant papers dedicated to the topic (Huysman & De Wit, 2003). Knowledge sharing is recognized as a critical process for knowledge creation, organizational learning, and performance achievement (Bartol and Srivastava, 2002). Inkpen (2000) states "unless individual knowledge is shared throughout an organization, the knowledge will have limited impact on organizational effectiveness." Bock and Kim (2002) assert that knowledge sharing is the most important component of knowledge management. Organizations view knowledge sharing as vitally important to their competitive advantage, enabling skill and competence development (Matzler et al., 2005). Many organizations have already achieved significant benefits through knowledge sharing activities, for example, Toyota (Dyer and Nobeoka, 2000), Dow Chemical (O'Dell, Wiig and Odem, 1999), and Ford company (McDermott and O'Dell, 2001).

The knowledge sharing behavior affects organization's ability to perform and respond to changes (Kim & Lee, 2006). In addition, a study by Marques et al. (2008) analyzed a range of factors that affect embedded implicit knowledge and the success of knowledge sharing behavior, and found the most important were the relationships between colleagues, the individual's capacity and interest in learning and the way knowledge was shared. The nature of knowledge is also a key factor in effective knowledge sharing. Knowledge can be classified as explicit or tacit. Explicit knowledge is formal, systematic, and can be codified into records such as databases and libraries (cited in Nonaka, 1994). It can be documented, created, written down, transferred orally or through some medium of communication such as emails, telephone or information systems. Indeed, explicit knowledge can be processed by information systems, codified or recorded, archived and protected by organizations. Tacit knowledge is embedded in human mental

processes, is obtained through experience and work practices, and is transferred by observing and applying it (Choi and Lee, 2003). Thus, tacit knowledge resides inside the human mind and is difficult to transfer. Polanyi (1966) defines tacit knowledge as highly personal, held in people's heads and embedded in each person's daily work practice (cited in Nonaka, 1994). So it can be semiconscious and unconscious knowledge. Tacit knowledge can be classified into two dimensions; technical and cognitive. Technical knowledge includes information and expertise "know-how" while cognitive consists of mental models, beliefs and values. Tacit knowledge also includes physical skills learned through practice, which are automatic and require little or no time or thought. Indeed, tacit knowledge is not found in manuals, books, databases or files. Even though explicit knowledge is easier to share and utilize (Pathirage et al., 2007), organizations should focus on utilizing and capitalizing highly valuable tacit knowledge.

2.2 Reward Systems

According to Syed-Ikhsan and Rowland (2004), knowledge sharing among individuals needs a strong motivator, and it is irrational to assume that all individuals are willing to share knowledge without consideration for what may be gained or lost because of this action. In addition, the reward system is a key factor for motivating knowledge sharing behavior. According to Al-Busaidi et al. (2010), the reward system is critical in motivating individuals to freely spend time and effort to share their knowledge with others through a knowledge management system.

Many organizations have established reward systems in order to motivate employees to share their knowledge (Bartol and Srivastava, 2002). The rewards are likely to influence people's behavior (Homans, 1974). Lack of obvious reward and identification systems may discourage employees to share their knowledge (Riege, 2005). Introducing a proper knowledge sharing incentive system can promote organizational members' knowledge contribution (Chua, 2003).

Bartol and Locke (2000) identified that organizational reward systems are useful for motivating individuals to perform the targeted behaviors. However, Deci et al. (2001) found that contingent reward had no effect on an individual's interest in the task. Research by Amabile (1993) suggests that intrinsic motivation can be mixed with particular forms of extrinsic motivation to enhance prospects for creativity. These synergistic extrinsic motivators give

feedback about the value of individual's outcomes, but do so without undermining self-efficacy. Thus, numerous studies argue that the presence of a reward system is critical for the success of knowledge sharing in an organization. Bartol and Srivastava (2002) argued that the contributing knowledge to databases is the easiest knowledge sharing behavior to reward contingent on because the reward allocator can easily measure time and effort spent on knowledge sharing. O'Dell and Grayson (1998) suggested that based on the psychology of learning literature, to encourage knowledge sharing or transfers, an organization needs to reward the positive behavior of learning and sharing, and not reward the nonconductive behavior of hoarding knowledge.

Two broad classes of motivation – extrinsic and intrinsic – have been defined and examined across various contexts and studies (Deci and Ryan 1985; Vallerand, Deci and Ryan, 2000; Davis, Bagozzi and Warshaw, 1992). Extrinsic motivation focuses on the goal-driven reasons, e.g. rewards or benefits earned when performing an activity, while intrinsic motivation indicates the pleasure and the inherent satisfaction derived from a specific activity (Deci, 1975). Thus, intrinsic motivation is self-directed to the extent an individual experiences choice and acts with a sense of true desire. When individuals engage in knowledge sharing willingly, because they find it interesting, they are sharing the knowledge freely. In contrast, behaviors can be controlled to the extent individuals perceive a sense of pressure to perform them. An example of controlled motivation is extrinsic motivation. When individuals engage in knowledge sharing because of perceived pressure from management or with the expectation rewards in return, their behavior is controlled. Prior research on knowledge sharing has identified extrinsic motivators to be organizational rewards (Al-Busaidi, Olfman, Ryan, Leory, 2010; Gomez- Mejia and Balkin, 1990; Bock et al., 2005; Wasko and Faraj, 2000; Yamagishi and Cook, 1993; Davenport and Prusak, 1998; Gray, 2001; Thibaut and Kelley, 1986; Constant et al., 1994) and intrinsic motivators (Wasko and Faraj 2000; Gardner and Pierce, 1998). However, some studies did not find reward a significant factor in influencing knowledge sharing, individuals' attitude or intentions, and have cautioned against its use (Kankanhalli et al., 2005; Lin, 2007).

3. Research Model

The research model examines the relationship between intrinsic and extrinsic reward, tacit and explicit knowledge sharing. It is presented in Figure 1.

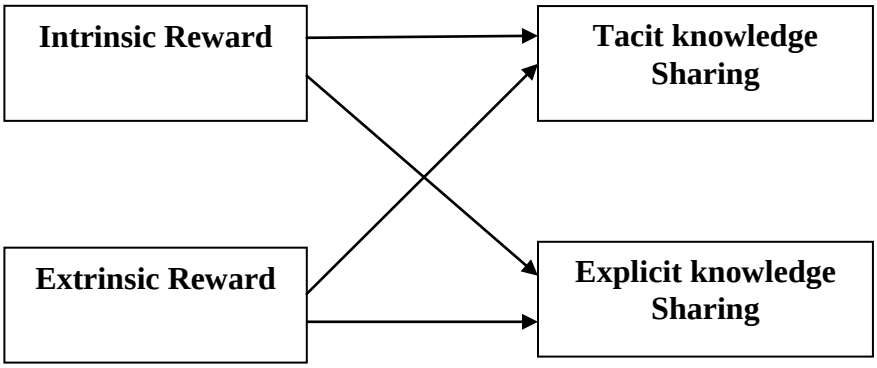

Figure 1: Research Model

Based on the research model the following hypotheses are formulated:

H_1: Intrinsic Reward has a positive relationship with tacit knowledge sharing behavior.

H_2: Extrinsic Reward has a positive relationship with tacit knowledge sharing behavior.

H_3: Intrinsic Reward has a positive relationship with explicit knowledge sharing behavior.

H_4: Extrinsic Reward has a positive relationship with explicit knowledge sharing behavior.

4. Methodology

The participants of this survey are lecturers in the top-ranked government universities of Iran. Based on the ISI (Institute for Scientific Information) database, the top 10 government universities contributed approximately 50% of Iran's published knowledge creation. The study focused on individuals with the maximum amount of knowledge creation with participation restricted to assistant professor or higher. The survey was distributed to all faculties by hard copy and soft copy (through e-mails). We chose a convenience sampling method because a directory or list of the large number of individuals working in the university was not available. We received responses from 110 lecturers from different faculties. A structured questionnaire, containing questions adapted from measures previously validated by other researchers, was used to collect the data. Extrinsic reward and intrinsic reward were assessed using an eight item scale adapted from Choi, Kang and Lee (2008). Knowledge sharing behavior was assessed using a

nine item scale with two items adapted from Bock and Kim (2002) and the remainder adapted from Lu, Leung and Koch (2006). The questionnaire was distributed to 1000 respondents with 110 responding.

4.1 Goodness of Measure

To assess goodness of measure we used the inter item Cronbach alpha coefficient as suggested by Nunnally (1994), who states that the Cronbach alpha values should be above the cutoff value of .70 to be acceptable. The alpha value for the variable extrinsic reward was (.70), and intrinsic reward (.74). As all values were above the .70 values suggested, we can conclude that the measures used are reliable. The alpha value for the variable explicit knowledge was (. 73), and implicit knowledge (. 71).

5. Findings

A total of 110 questionnaires was received at the end of the data collection process. The respondent profile was analyzed from four aspects; namely gender, marital status, academic position, years of experience.

Table 1: Demographic Characteristics of the Sample

Variable	Category	Frequencies	Percentage
Gender	Male	87	79.1
	Female	23	20.9
Marital status	Married	101	91.8
	Single	9	8.2
Academic position	Professor	17	15.5
	Associate professor	76	69.1
	Senior lecturer	17	15.5
Years of experience	less than 5 years	21	19.1
	5-10 years	38	34.5
	11-20	37	33.6
	more than 20 years	14	12.7

Of the 110 respondents, 87(79%) are males and 23(20.9%) are females. The majority of respondents are married 101 (91.8%), only 9(8.2%) are single, and associate professor 76(69%) with the rest professor and senior lecturer. The years of experience ranged from less than 5 years, 21 (19.1%); the majority has experienced between 5-10 years 38(34%) and 11-20 years 37(33.6%) with the rest with more than 20 years 14(12.7).

Table 2: The Mean and Standard Deviation of the Study Variables

Variables	Mean	Std. Deviation	EK	IK	ER	IR
Explicit Knowledge	5.74	0.97	1.000			
Implicit Knowledge	5.69	0.94	0.498**	1.000		
Extrinsic Reward	2.16	1.10	-0.176**	-0.203**	1.000	
Intrinsic Reward	4.70	1.05	0.453**	0.340**	0.021	1.000

**p < .01

Table 3**:** Results of the Regression Analysis

	Explicit Knowledge		Implicit Knowledge	
Variable	Standardized β	*t*-value	Standardized β	*t*-value
Extrinsic Reward	-.185	-2.185**	-.210	-2.361**
Intrinsic Reward	.457	5.391**	.344	3.861**
R	.489		.399	
***R* Square**	.239		.159	
Adjusted *R* Square	.225		.144	
F	16.678		10.056	

**p< .01

The results show an R^2 value of .239 indicating 23.99% of the variation in behavior to explicit knowledge can be explained by Extrinsic Reward and Intrinsic Reward. The model is significant (F = 16.678, p< .01). For explicit knowledge sharing, intrinsic reward (β = .457, p< .01) is statistically significant and positively associated with explicit knowledge sharing, whereas Extrinsic Reward (β = -.185, p< .01) is statistically significant but shows negative association with explicit knowledge sharing. The results show R^2 value .159 indicating 15.99% of the variation in behavior to tacit knowledge can be explained by Intrinsic Reward, and the model is

significant (F = 10.056, p< .01). Intrinsic Reward (β = .344, p< .01) is statistically significant and positively associated with implicit knowledge sharing, whereas extrinsic reward (β = -.210, p< .01) is also statistically significant but shows negative association with knowledge sharing behavior. Thus, H1 and H3 of this study were supported whereas H2 and H4 were not supported.

6. Discussion

Intrinsic motivation is self-directed to the extent an individual experiences choice and acts with a sense of true desire. When individuals engage in knowledge sharing willingly because they find it interesting, they share knowledge of their own volition. In contrast, are coerced or controlled behaviors where the individuals perceive a sense of pressure to perform. An example of controlled motivation is extrinsic motivation. When individuals engage in knowledge sharing under the perceived pressure from management, or with the expectation of some incentive in return, their behavior is controlled. This study is in line with previous research (Babalhavaeji & Jafarzadeh, 2011; Tohidi & Mosakhani, 2010).

This study aims to investigate reward systems that determine knowledge sharing behavior. The study was conducted in Iran, a developing country. However, knowledge in Iranian culture represents power, and so promoting knowledge sharing behavior is even more challenging in Iran.

The analysis of the research results showed an overall consistency with the previous studies (Bock et al., 2005; Kankanhalli et al., 2005). Extrinsic reward did not demonstrate a significant relationship with both dimensions of knowledge sharing behavior: one reason may be that as knowledge sharing is a sensitive behavior an effective reward system needs to be encouraged. Indeed, Cabrera and Cabrera (2002) noted that non-monetary rewards such as social recognition can be more meaningful to an individual than monetary rewards. Using regression analysis the survey results established intrinsic rewards have enabled both dimensions of knowledge sharing behavior. This relation is evidently predictable in Iran because tacit knowledge—personal abilities and skills like insight or intuition—are highly regarded and protected. Furthermore sharing tacit knowledge is not as easy as sharing explicit knowledge; it is achieved by socialization, observation or apprenticeship. Therefore, willingness to share tacit

knowledge needs intrinsic rewards valued by the individuals, such as enhanced reputation, autonomy, or not exerting pressure. APQC (1999) has described that knowledge sharing behavior is strongly related to the core cultural values of the organization. Culture is rarely the same in any two organizations; each has its own way of motivating and generating interest in sharing knowledge.

An explanation for the negative significance of extrinsic reward can be found in the pay-for-performance research. Kohn (1993) lists six reasons why extrinsic rewards may undermine performance. First is, that for most people, pay is not an important motivator. Second, when rewards and incentives are contingent on exhibit certain behaviors, individuals' experience of control and manipulation is likely to diminish performance over time: "Do this and you'll get that' is not really very different from 'Do this or here's what will happen to you.' (Kohn, 1993, p5.). Third, competition for rewards often breaches employee relationships and reduces cooperation. Fourth, substituting incentive systems to focus employee behavior is easier than responsible management—feedback, training, and support. Fifth, rewards hinder creativity and risk-taking. Sixth, rewards, like punishments, undermine the intrinsic motivation of people. Employees work best with intrinsic motivators; desire for excellence and self direction are just two. Extrinsic motivators create a negative employee orientation to work activities. Management controls, monitoring, and incentives reduce interest in the task, rather than increase it.

Numerous studies argued that the presence of a reward system is critical for the success of knowledge sharing behavior in an organization. Bartol and Srivastava (2002) suggested the task most appropriate for reward was the contribution of knowledge into databases, because it is easier to measure the knowledge sharing behavior in this task. O'Dell and Grayson (1998) suggested that based on the psychology of learning literature (Skinner, 1938), to encourage knowledge sharing behavior or transfers, an organization needs to reward the positive behavior of learning and sharing, and not reward the unproductive hoarding behavior.

The reward systems that employees do not recognize as contingent (Bartol & Srivastava, 2002) or performance based (Kim & Lee, 2006) might fail to support knowledge sharing behavior. In addition, non-monetary rewards such as social recognition can be more meaningful to employees (Cabrera & Cabrera, 2002).

7. Implications and Conclusions

Knowledge sharing behavior has been identified as the key enabler of KM. To leverage knowledge resources and to support knowledge sharing behavior, universities are employing KM systems. The central focus of this study was to examine the effect of reward systems on knowledge sharing in Iranian higher education institutions. Few previous studies have examined knowledge management and sharing in an Iranian context. We examined the relationships between tacit knowledge, explicit knowledge, and reward system factors with knowledge sharing in higher education. The findings of this study show intrinsic rewards have positive significant effects on knowledge sharing within institutions and make an important contribution to the literature on knowledge sharing in higher education. In line with Kohn (1993), whose findings are based on western, developed-nation thinking, our study found that intrinsic reward plays an important role, Especially in the area of sharing tacit knowledge, a high degree of intrinsic reward is required to improve academic performance.

From a practical perspective, the results of this study help institutions to have a better understanding regarding knowledge management and knowledge sharing. By applying the findings, institutions could improve knowledge sharing inside universities. By designing measures to help convert more tacit knowledge into explicit knowledge, such as encouraging team members to document their techniques or management expertise, and developing modern databases to aid the conversion process, institutions can have a positive impact on tacit knowledge sharing. Moreover, the intrinsic reward improves knowledge sharing. Institutions employing management strategies, which increase self-determination and support member knowledge sharing, redistribute knowledge from individual levels, to group or team levels, to organizational levels, and up to inter-organizational levels. Extrinsic reward improves knowledge sharing when it increases involvement and communication among team members and across departments in a targeted setting. Overall, the results of the paper advance prior research in the area of knowledge sharing behavior by shedding light on the determinants of knowledge sharing behavior of academicians.

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