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AN EMPIRICAL STUDY ON THE EFFECT OF INDIVIDUAL FACTORS ON TACIT KNOWLEDGE-SHARING IN THE ICT SECTOR

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Abstract

The main focus of this study is to examine the direct relationship between individual factors and tacit knowledge-sharing. A total of 400 questionnaires were distributed to the technical staff of the ICT sector in Jordan. Out of 400, only 365 were usable for further analysis, representing a response rate of 92.75%. Hypotheses for direct effect were tested using multiple regression analyses. Factors such as individual attitude, organizational commitment, knowledge self-efficacy, were found positively related to tacit knowledge-sharing.

***Keywords**: Tacit knowledge-sharing, individual attitude, organizational commitment, knowledge self-efficacy.*

Introduction

In present days, the economy depends mainly on knowledge, and for that reason today's economy is known as the knowledge economy or "k-economy" (Sunassee & Sewry, 2003; Halawi, Aronson, & McCarthy, 2005). K-economy is characterized by rapid development, does not depend on traditional capital assets, and it is dynamic. Knowledge economy is shared worldwide (Civi, 2000). This is because the importance of knowledge as an intangible asset for an organization is more important than tangible assets such as land, equipments and capital (Civi, 2000; Zaim, Tatoglu, & Zaim, 2007). As such, it is imperative for organizations to focus on investment in knowledge resources or intellectual capital (e.g. experience, skills, capabilities, patents) (Wei, Choy, & Yew, 2009) in order to compete effectively in today's economic condition.

Background of the Study

A lot of effort is being spent toward successful knowledge-management (KM) initiatives in Jordanian organizations, and to the establishment of many of Jordanian projects that represent the application of knowledge management. The importance placed on KM is further emphasized when it becomes one of the evaluation citeria for the "King Abdullah II award for excellence for the private sector" which was created in 1999. Due to this factor, organizations in Jordan also make an effort to implement activities related to knowledge management.

The importance of knowledge management in Jordan is further emphasized because this country is inundated with the problem of "brain drain". According to a report in the Jordan Business (2014), "in the last year, over 50 Jordanian tech companies have closed shop, with many of them moving their ventures to other countries". In addition to that, it was also reported that "the Jordanian Department of Statistics and the Ministry of Planning and International Cooperation have seen at least 30 of their most highly trained employees lured to the Gulf with salaries four to five times higher than what they would make in the Kingdom" (Jordan Business, 2014). In view of this problem, one aspect of knowledge management that becomes important is knowledge-sharing.

According to Eftekharzadaeh (2008), the lack of tacit knowledge-sharing leads to the loss of organizations' "intellectual capital" which takes place by losing knowledge when individuals leave the organization. Therefore, effective knowledge-sharing provides solutions to the "brain drain" problem and maintains the intellectual capital of an organization (Awad & Ghaziri, 2004; Eftekharzadaeh, 2008). In addition, the sharing of tacit knowledge contributes to solving the problem of "reinventing the wheel" which takes place when one of the employees leaves the organization (McAdam, Mason, & McCrory, 2007).

However, researches in the field of knowledge-sharing are scarce in Middle Eastern cultures (Seba, Rowley, & Lambert, 2012), and in developing countries (Boumarafi & Jabnoun, 2008; Eftekharzadeh, 2008). In essence, the importance of tacit knowledge is not yet fully understood and not well taken into account compared to the

importance of explicit knowledge (Davenport & Prusak, 1998; Zack, 1999). Obviously, there is an agreement in the literature that sharing of tacit knowledge is more difficult than explicit knowledge (McAdam et al., 2007). However, studies that investigated the tacit knowledge-sharing are quite limited in number. Among the most important studies are those by and Lin (2007b) and McAdam et al. (2007). Most other studies studied knowledge-sharing in general (Bock, Zmud, & Kim, 2005; Constant, Kiesler, & Sproull,1994; Kankanhalli et al., 2005; Kuo & Young, 2008; Jarvenpaa & Staples, 2000; Wang & Noe, 2010; Wasko & Faraj, 2005). Hence, there is still a need to identify the factors that would lead employees to share knowledge, especially tacit knowledge with their colleagues.

Literature Review

In essence, the human capital theory is the foundation that is to build the framework of this study. Based on this theory, "human capital is a collection of resources—all the knowledge, talents, skills, abilities, experience, intelligence, training, judgment, and wisdom possessed individually and collectively by individuals in a population. These resources are the total capacity of the people that represent a form of wealth which can be directed to accomplish the goals of the nation or state or a portion thereof" (Becker, 1993). This means that the human capital possessed by employees working in an organization can be used to achieve the goals of that organization, specifically if the goal that is of concern is tacit knowledge-sharing.

Knowledge-sharing

Knowledge-sharing is the essential means for the contribution to knowledge application and innovation, and ultimately bringing the competitive advantage of the organization by the employees (Batra, 2010). Organizations can capitalize on knowledge-based resources if the knowledge-sharing between employees and teams is possible in the organization (Cabrera & Cabrera, 2005; Davenport & Prusak, 1998). There is much empirical evidence that support the argument that knowledge-sharing improves organization performance in terms of costs of production, efficient completion of novel product development projects, performance of teams, innovation capabilities of the firm, and its performance such as sales growth and revenue

accruing from new products along with new products and services resulting in revenue (Arthur & Huntley, 2005; Collins & Smith, 2006; Cummings, 2004; Hansen, 2002; Mesmer-Magnus & DeChurch, 2009). Thus, it cannot be denied that organizations must make sure that employees share knowledge with each other.

Tacit Knowledge-sharing

Basically, organizational knowledge to be shared can be categoried into two, which are tacit and explicit knowledge. The sharing of tacit knowledge is deemed to be more important because it is commonly agreed that sharing of explicit knowledge is much easier than the sharing of tacit knowledge (Ipe, 2003). Explicit knowledge can be shared by means of books, manuals, video clips, databases and expert systems. This sharing is also possible by formal training. Therefore, not much encouragement is necessary for the sharing of explicit knowledge as this sharing is comparatively easier. The same cannot be done with tacit knowledge. Sharing of tacit knowledge requires more effort. That is why the focus of most of the studies is either general knowledge-sharing behaviour (Hong, Doll, Nahm & Li, 2004) or specific tacit knowledge-sharing behaviour (eg. Koskinen et al., 2003; Jones, 2005; Lin, 2007b). Most importantly, there is a need to determine the factors that could lead employees to share their tacit knowledge

Individual Attitude

Davis (1989) and Fishbein and Ajzen (1975) suggest that research on individual attitude is heavily dependent on the theory of logical and rational action and the subsequent adapted technology acceptance model. These theories illustrate the way individual behaviours are influenced by beliefs, norms, values and attitudes. In fact, positive knowledge-sharing attitude could lead to intentions and behaviours related to knowledge sharing (Bock & Kim, 2002). Thus, positive attitude towards knowledge-sharing is crucial for tacit knowledge-sharing.

Organizational Commitment

Organizational commitment incorporates the strength of an employee's identification with, and involvement in a particular organization (Porter, Steers, Mowday, & Boulian, 1974). It is

also regarded as a positive response by employees who form the organization and its structure (Becker, 1992). Effective and efficient response to the organization as an entity rather than to any specific function or context is frequently emphasized by various views of organizational commitment (Farmer, Beehr, & Love, 2003).

A number of studies related to the organization theory, report organizational commitment as a significant element in explaining knowledge-sharing (Jarvenpaa & Staples, 2001; Van den Hooff & Van Weenen, 2004). According to commentators such as Hall (2001) as well as Van den Hooff and Van Weenen (2004), individuals with the feeling of emotional attachment to their organization are likely to share their knowledge. Hence, organizational commitment is important to make employees share their tacit knowledge with others in the organization.

Knowledge Self-efficacy

In general, self-efficacy is an effective predictors of many organizational behaviours and attitudes (Salgado & Moscoso, 2000). According to Bandura (1997), the notion of self-efficacy signifies a *"judgement of one's capability to accomplish a certain level of performance"*. Many researchers including Bandura, (1997) and Gist and Mitchell (1992) have confirmed that a person's sense of self-efficacy heavily influences the person's inclination to engage in a specific course of action such as task performance. In order for tacit knowledge-sharing to occur, one must believe that one has the capability and the knowledge that is to be shared. Hence, knowledge self-efficacy is an important aspect of tacit knowledge-sharing.

Hence, based on these arguments it is proposed that individual attitude, organizational commitment, and knowledge self-efficacy can be used to help organizations achieve their goals, specifically making employees share knowledge that is important to the organization with other employees. This relationship is depicted in Figure 1.

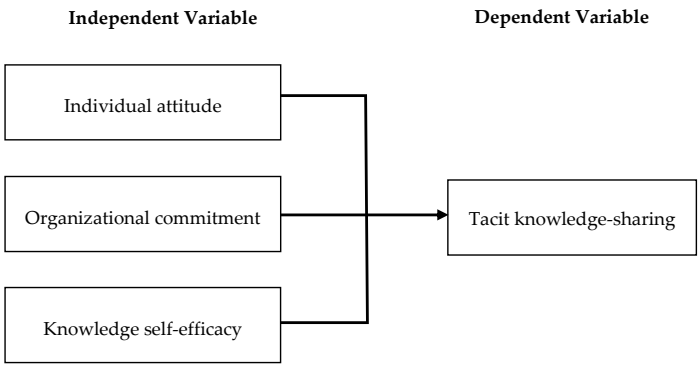

Figure 1. Research framework.

Research Methodology

Data for this study was collected through questionnaires containing items measuring all the variables involved. Tacit knowledge-sharing was measured using a modified version of Bock and Kim's (2002) 5-item scale. Individual attitude was measured using the 5-item measure adapted from Bock, Zmud, Kim, and Lee (2005). Organizational commitment was measured using the 7-item measure by Wayne, Shore and Liden (1997). Finally, the scale used to measure knowledge self-efficacy was adapted from Lin (2007b). The scale consists of 4 items. All items were measured using a five-point scale, whereby 1 represented "strongly disagree", and 5 represented "strongly agree".

A total of 400 questionnaires were distributed between June 27th 2011 and 3rd September 2011. Respondents were given a week to complete the questionnaire. At the end of the survey period, a total of 375 questionnaires were returned. Out of the 375 questionnaires, ten cases were deleted four were due to missing data and six were deleted due to outliers. Therefore, data from 365 participants were used for the analysis, yielding a return rate of 92.75 per cent.

Results

Data collected for this study were analyzed using the SPSS (version 15.0) program for Windows. Prior to the primary analyses, the data were examined for data entry accuracy, outliers, and distributional

properties. Outliers were detected using both the z-scores (with a cut-off point of ±3*SD*) and the Mahalanobis distance (a cut-off point of .001). Data screening was performed to identify data entry errors and to examine how appropriately the data meets the statistical assumption which involves descriptive statistics of variables, missing data, and treatment of outlier response bias, normality, homoscedasticity, multicollinearity and reliability. Several statistical techniques such as descriptive statistics, factor analysis, correlation analysis and regression analysis were also conducted.

Demographic Profile

In general 71% of the respondents were males. Most of the respondents had bachelor degrees (64.1%), and 34.1% of them had postgraduate degrees (either masters or doctorate). Most importantly, about 60.1% of the respondents had more than 5 years of working experience, and all of them were working in the IT sector in various positions.

Factor Analysis

Table 1 shows the factor analysis result for tacit knowledge-sharing. As shown in the table, the Eigenvalues is 3.487 and the Kaiser Meyer-Olkin (KMO) value is .830. All value items have a loading value of more than 0.5. Hence, a factor solution which explained 69.74% of the variance was derived.

Table 1

Factor Analysis for Tacit Knowledge-Sharing

		Loading
I share my job experience with my co-workers.	TKS1	*.847*
I share my expertise at the request of my co-workers.	TKS2	*.871*
I share my ideas about jobs with my co-workers.	TKS3	*.799*
I talk about my tips on jobs with my co-workers.	TKS4	*.813*
I often provide my personal working experience and knowledge to our team members.	TKS5	*.844*
KMO		.830
Eigenvalues Value		3.487
Total Variance		69.74%

Table 2 shows the result of the factor analysis for all individual factor items. In this study, the exploratory factor analysis was employed. The factor analysis was conducted based on Igbaria et al. (1995) procedures that each item should load 0.5 or greater on one factor and 0.35 on the other factor. The results indicated three factor solutions with Eigenvalues greater than 1.0 and the total variance explained was 68.97%. KMO measure of sampling adequacy was 0.735 indicating sufficient inter-correlations while the Barlet Test of Sphericity was significant (Chi square = 4351.260, $p < .001$). Bartlett's Test of Sphericity indicates whether correlation matrix is an identity matrix, which would indicate that the variables are unrelated. The chi-Square significant level was less than .01.

Table 2

Factor Analysis for Individual Factors

		Factors		
F1: Individual Attitude		F1	F2	F3
My tacit knowledge-sharing with other organizational members is good.	IA1	*.854*	.130	.063
My tacit knowledge-sharing with other organizational members is harmful.	IA2	*.926*	.100	.115
My tacit knowledge-sharing with other organizational members is an enjoyable experience.	IA3	*.886*	.133	.145
My tacit knowledge-sharing with other organizational members is valuable to me.	IA4	*.896*	.095	.063
My tacit knowledge-sharing with other organizational members is a wise move.	IA5	*.895*	.090	.126
F2: Organizational Commitment				
I really care about the fate of this company.	OCM2	.104	*.721*	.200
I am extremely glad that I chose this company to work over others I was considering at the time I joined.	OCM3	.068	*.843*	.152
I talk about this company to my friends as a great organization for which to work.	OCM4	.077	*.764*	.144
I am proud to tell others that I am part of this organization.	OCM5	.131	*.739*	.058
I find that my values and the organization's values are very similar.	OCM6	.111	*.707*	.065

(continued)

		Factors		
For me this is the best of all possible organizations for which to work.	OCM7	.053	*.710*	.099
F3: Knowledge Self-efficacy				
I am confident in my ability to provide knowledge that others in my company consider valuable.	KSE1	.079	.258	*.773*
I have the expertise required to provide valuable knowledge for my company.	KSE2	.136	.029	*.894*
It does not really make any difference whether I share my knowledge with colleagues.	KSE3	.077	.143	*.565*
Most other employees can provide more valuable knowledge than I can.	KSE4	.114	.138	*.930*
KMO			.735	
Eigenvalues Value		4.071	3.534	2.741
Total Variance (68.97%)		27.140	23.558	18.276

Correlation Analysis

Table 3 presents the means, standard deviations, and Pearson correlations of variables for the 365 participants. The internal consistency reliabilities (Cronbach's Alpha) of the research measures are reported in parenthesis along the diagonal of the correlation table. As shown in Table 3, the Cronbach's alphas for three sub-scales of the individual factors (individual attitude, organizational commitment, knowledge self-efficacy) were in the range of .83 and .94.

Table 3

Descriptive Statistics, Scale Reliabilities, and Correlations of Variables

	Mean	S.D.	1	2	3
1. Individual attitude	3.90	.798	(.94)		
2. Organizational commitment	3.89	.746	.262**	(.86)	
3. Knowledge self-efficacy	3.86	.748	.254**	.358**	(.83)

Testing the Hypotheses

The study hypotheses were tested using regression analysis and the results are presented in Table 4. Table 4.10 shows that 32% ($R^2 = 0.32$, $F = 55.24$, $p < 0.001$) of the variance in tacit knowledge-sharing was significantly explained by the three

individual factors. In fact, individual attitude (β =.357, t = 7.710; $p < 0.001$), organizational commitment (β =.165, t = 3.439; $p < 0.001$), and knowledge self-efficacy (β = .244, t = 5.097; $p < 0.001$) were found positively associated with tacit knowledge-sharing. Therefore, all the hypotheses were supported.

Table 4

Individual Factors on Tacit Knowledge-Sharing

	Standardized Beta	t	Sig.
Individual Attitude	.357	7.710	.000
Organizational Commitment	.165	3.439	.001
Knowledge Self-efficacy	.244	5.097	.000
R^2	.320		
Adjusted R^2	.314		
F	55.244		.000

Discussion and Conclusion

The main purpose of this study is to determine the relationship between individual attitudes, organization commitment and knowledge self-efficacy, and tacit knowledge-sharing among technical employees, in the Jordanian ICT sector. In general, these employees are highly skilled and posses valuable knowledge for the organizations they work for. Hence, it is crucial for the organizations to know the factors that could encourage them to share knowledge with each other so that new knowledge could be created and eventually benefit the organization as a whole. The findings of this study showed that there is a significant relationship between individual factors and tacit knowledge-sharing. Specifically, this study indicated that individual attitudes, organization commitment and knowledge self-efficacy are significant predictors of tacit knowledge-sharing. Hence, organizations in the Jordanian ICT sector need to pay more attention to these factors and find ways to ensure a positive attitude towards knowledge-sharing, organizational commitment and high self-efficacy.

In this study, individual attitude is described as the individual's level of favourable or positive feeling regarding sharing his or her knowledge (Hutchings & Michailova, 2004). Indeed, the findings

of this reseach confirms that in order for tacit knowledge-sharing to occur, the people who contribute their knowledge must have a positive attitude towards the act of sharing (Bock et al., 2005; Seba, Rowley, & Lambert, 2012). In fact, researchers, such as Gottschalk (2007) and Yang (2009) have specifically emphasized the role of attitude in the effectiveness of knowledge-sharing practices. In other words, they must like sharing knowledge, and believe that sharing their knowledge is a good thing to do.

In concurrence with most previous studies (Bock et al., 2005; Lin, 2007b; O'Reilly & Chatman, 1986; Kalman, 1999; Cabrera, et al., 2006; Lin, 2007b), this study also shows that there is a significant relationship between organizational commitment and tacit knowledge-sharing. The concept of organizational commitment is properly explained and argued as the extent of the individual's integration into the organization and interest in remaining a member thereof. Individuals with strong organizational commitment behave in a manner different from that of other individuals. Apart from the willingness to remain members of the organization, individuals with strong organizational commitment tend to be extremely ready in making sacrifices for the sake of the organization and its survival. Of course, such sacrifice may not necessarily be of a high cost; but may only involve some minor actions which stress the individual's strong commitment towards the organization, including sharing of tacit knowledge, expertise, and skills with their colleagues.

Finally, the findings of this study also showed that there is a significant relationship between knowledge self-efficacy and tacit knowledge-sharing. The results are consistent with studies, such as those by Lin (2007c) and Cabrera et al. (2006) who report a strong relationship between knowledge self-efficacy and tacit knowledge-sharing. It can be inferred that a sense of personal competence and confidence may be a requirement for a person to engage in tacit knowledge-sharing.

Therefore, to ensure the occurance of tacit knowledge-sharing, organizations must make efforts to heighten employees, positive attitude towards knowledge-sharing, organizational commitment and self-efficacy. However, these are not easy. There are many factors that could affect these three factors. According to Mathieu and Zajac (1990), it is imperative for managers to consider the fact that attitudes are influenced by many antecedents such as personal characteristics, role perceptions, job characteristics, group leader relations and

organizational characteristics. Personal factors are generally within the control of managers and therefore, managers should concentrate on making sure that favourable contextual factors exist that would encourage the employees to commit themselves towards their organizational strategy and hence, to take part in knowledge-sharing. For instance, managers may work towards their subordinates' job enrichment through the provision of more autonomy and skill variety. Moreover, managers may also take up a participative type of leadership which would enhance the subordinates' commitment.

In addition to that, Parker (1998) recommends several ways to enhance employees' self-efficacy. He reports that recruiting and selecting proactive employees who possess high cognitive aptitudes, high self-esteem and are intrinsically motivated can help organizations to build highly self-efficacious staff. Parker (1998) also suggests several organizational practices that could be instrumental in creating the type of supportive environment that is important to foster knowledge-sharing and eventually help organizations develop self-efficacy among existing employees. He proposes that a rich two-way communication between the employee and the organization could positively contribute to employee's self-efficacy. This can be achieved by providing informative details to the staff, listening to their constructive opinions and providing the right channels for them to voice their opinions.

In short, organizations in the Jordanian ICT sector face great challenges in ensuring that valuable knowledge is retained in the organizations even if their employees leave the organizations. Due to this, knowledge-sharing, specifically tacit knowledge-sharing, without doubt must be encouraged. This study has identified some of the individual factors that could affect tacit knowledge sharing. Hence, organizations must make efforts to make sure that these individual factors, mainly positive attitude towards knowledge-sharing, organizational commitment, and knowledge self-efficacy, are present among their employees.

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