Individual motivational factors of optimistic knowledge sharing behavior among University academia

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Key Words

Knowledge Sharing Behavior, University Academia, Motivational factors

Abstract

This study attempts to comprehend individual motivational factors (outcome expectations, selfefficacy, and enjoyment in helping others) that contribute toward knowledge sharing behavior of University faculty of Pakistan. 327 faculty members from public and private sector University of twin cities (Rawalpindi, Islamabad) were chosen as a sample of study. AMOS and SPSS were used to analyze the data collected via questionnaires. The study found that all the stated individual motivational factors are positively and strongly associated with optimistic knowledge sharing behavior of University academia. Moreover, the study also discovered that knowledge sharing intention mediates the relationship of knowledge sharing attitude and knowledge sharing behavior. The management of Academia should invest in individuals motivational factors, to augment their knowledge sharing behavior. Regardless of significance contributions, the study also entails some limitations which are also discussed in this paper. Moreover, future line of study is also addressed.

1. Introduction

Knowledge isgroundworkand a prime driver of competitive advantage. It is primarily created and stored within individuals, and hence its sharing is always a challenge (Chow & Chan, 2008). According to Nonaka and Takeuchi (1995), knowledge sharing is deliberated a foremost enabler of knowledge management. Lee & Al-Hawamdeh (2003) defined knowledge sharing as reusability of knowledge by others by disseminating knowledge.

Several researchers are curious about reasons of knowledge hoarding by knowledge workers and the ways toaugment knowledge sharing to an optimal level (Youndt& Snell, 2004: Willmanet al, 2001). Youndt and Snell (2004) originate that bureaucratic culture, rigid organization structures limit the sharing of knowledge. Other researchers found that perception of individuals to loose status and advantage (Willmanet al, 2001), and role of reward (Robertson & O'Malley Hmmersley, 2000) arepertinent in knowledge sharing or knowledge hoarding. Cummings (2004) proposed factors of effective knowledge sharing (KS) i.e. knowledge source and knowledge recipient relationship, forms of knowledge, knowledge collector's learning predisposition, knowledge donator's ability to share and the environment in which knowledge is being shared.

According to Szulanski (1996), lack of motivation to transfer knowledge is an obstacle for organizations in knowledge sharing. According to economic exchange theory, individuals behave and perform by a coherent self-interest. That is why knowledge sharing will occur when the expectations of people meet by the rewards offered in return (Constant et al., 1996). Davenport and Prusak (1998), suggested that people weigh and expect the benefits they are offered in return of knowledge sharing. Swapping something of value and getting something of value in return, is an interdependent process of knowledge sharing (Christensen, 2005).Usually,

people answer a question in their mind, "what is in it for me, if I will share knowledge" (Bartol& Srivastava, 2002).

According to Wasko and Faraj (2005), individual motivation improves their willingness to share knowledge. When they think that their knowledge sharing will be worth and effective, they become motivated. Therefore, an individual's expectations of outcome benefits, will promote KS with other individuals. Bock and Kim (2002), suggested that expected rewards or perceived benefits significantly influence the attitude toward knowledge sharing. Rewards could be intrinsic (pleasure of doing something) and extrinsic (monetary) (Bartol& Srivastava, 2002). Rewards acts as a stimuli which encourages people to do something. These arguments open a gateway for further investigation that how an individual's outcome expectation (extrinsic motivation) augments the knowledge sharing behavior among University Academia.

Some studies (Osterloh and Frey, 2000), suggested that intrinsic motivation is more powerful than extrinsic (monetary) motivation to share knowledge. Self-efficacy is a person's confidence in his/her abilities to provide something valued and useful. Knowledge sharing selfefficacy (KSSE) is the confidence level of knowledge donator, in his abilities to provide valuable knowledge, which in turn augments the confidence level of knowledge receiver as well (Chih-Jou Chen &Shiu-Wan Hung, 2010). Self-efficacy determines the behavioral decisions to undertake knowledge sharing. A person having low level of self-efficacy, will possess less probability of KS as compare to the person who possess high self-efficacy (Chen Wai Ling, Manjit S. Sandhu & Kamal Kishore Jain, 2008).People having knowledge self-efficacy, believe that their knowledge sharing will solve the job-related problems and will supplement job efficiency (Kankanhalliet al., 2006: Lin, 2007a).

Enjoyment in helping others (EHO) is referred as individual's intention to assist other individuals (Dovidio, Piliavin, Schroedler, &Penner, 2006). It exerts a significant positive impact on knowledge provision (Wasko and Faraj, 2005) and a perspective of intrinsic motivation. Kankanhalliet al(2005) suggested that enjoyment in helping others and knowledge sharing is moderated by contextual factor i.e. generalized trust. Moreover, Lin (2007b) examined impact of individual, technological and organizational factors on KS process, and found that individual factor (enjoyment in helping others) is related to employee's knowledge sharing behavior (KSB). EHO strongly explains the knowledge-sharing process. Later, Sawalet al(2011) examined that KSSE is related to knowledge donation (KD) and knowledge collection (KC). Cruz et al., (2009) examined the impact of intrinsic and extrinsic motivation on knowledge transfer and found that KS is accelerated by intrinsic motivation.

Theory of planned behavior (TPB) gives indication of behavioral intention and knowledge sharing attitude. Ajzen and Fishbein (1980) in Theory of Reasoned Action (TRA) found that in order to study the IT related behaviors, TRA is the best attitude-intention-behavior model. It suggests that a person's action is based on two antecedents i.e. attitude and subjective norms. Behavioral attitude is favorable or unfavorable behavior appraisal. Ajzen (2001) discovered that attitude is an individual's positive or negative feelings about target behavior, while intention is an individual's engagement of KS act. TRA suggests that intention of behavior is a forecast of human behavior. Haunget al., (2008) conclude that attitude is a degree of favorable impression toward KS. There is a strong association between intention and behavior of purchase (Paylou&Fygenson, 2006). If knowledge management is heart then knowledge sharing is the blood circulation. The literature on knowledge sharing behavior of University Academia, remains scarce. Therefore, this study is designed to investigate the individual motivational factors which are imperative to augment the knowledge sharing behavior of University Academia, Academia of Pakistan.

2. Literature Review

Knowledge sharing is exchange of explicit and implicit knowledge and creating a new one (Gumus, &Onsekiz, 2007). The individual (IND) motivational factors chosen for the study are: outcome expectations, self-efficacy, and enjoyment in helping others. While behavioral aspects include attitude toward knowledge sharing, intention toward KS and knowledge sharing behavior.

2.1 Outcome expectations and knowledge sharing behavior

"Outcome expectations" is based on SET (Social Exchange Theory). Bock and Kim (2002) conducted a survey and found that "expected associations and contributions" influence employee attitude significantly. They also report that "expected rewards" are imperative facet of KS but are not positively associated with knowledge sharing attitude. They further research in this area and found in 2005, that "anticipated extrinsic rewards" are negatively associated with KS attitude. Lin (2007) also conclude the same findings that "expected organizational rewards" have no significant connection with KS attitude and KS intention. WhereasAllamehet al (2012) found a positive and significant relationship of self-expected organizational reward and intention to share knowledge. They took "expected organizational reward" as extrinsic motivational factor which influence the attitude of an individual to share knowledge. Zhihong and Tao (2010) recommended to study outcome expectation in the context of KSB. From the aforementioned review of literature, the following hypotheses are made:

H1: Outcome expectations have a significant effect on knowledge sharing behavior of University Academia

H2: Outcome expectations have a significant effect on University Academia's knowledge sharing attitude

2.2 Self-efficacy and knowledge sharing behavior

"Self-efficacy" is confidence in one's ability to endow valuable knowledge to others. The confidence level of knowledge collector enhances if they are getting useful knowledge (Chih-Jou and Shiu-Wan, 2010). Self-efficacy is the foremost contributor of self-motivation to share knowledge. It can be augmented via training (Bryant, 2005). Bryant further conclude that people with high self-efficacy are more willing to participate while people with low self-efficacy are more inclined to avoid the tasks and participation. Chen et al., (2008) found that some individuals do not share knowledge because they lack self-efficacy, fear to share knowledge and have no clear objectives. They fear that they will lose power, current position and their status. Bock and Kim (2002) conclude that individuals possessing strong self-efficacy of KS, have more power to promote KS because of their self-motivation. Therefore, SE is an important aspect of behavior control (Hsieh et al., 2008). There is a significant positive relationship of SE and IKS (Allahmehet al., 2012). Stasser and Titus (2003) suggest that when people share the valuable and useful knowledge, they feel more confident in what they do. Wang and Noe (2010) proposed to further study self-efficacy in future research. Therefore it is conjectured that:

H3: Self-efficacy has a significant effect on knowledge sharing behavior of University Academia H4: Self-efficacy has a significant effect on University Academia's knowledge sharing attitude

2.3 Enjoyment in helping others and knowledge sharing behavior

The concept of "Enjoyment in Helping Others" (EHO) is derived from the theory of altruism. It is giving benefit to others while expecting nothing in return. EHO exerts a positive manipulation on information provision (Wasko and Faraj, 2005). They found that employees are intrinsically motivated to contribute knowledge since they enjoy helping others. Pervious researchers originate that pleasure in helping others influence attitude toward knowledge sharing (Lin, 2007: He and Wei, 2009: Hsu and Lin, 2008: Aliakbaret al, 2012). By using extension

of theory of reasoned action, Aliakbaret al (2012) further suggest that this attitude helps to increase intention to share knowledge and which ultimately develops the behavior of knowledge sharing.

Lin (2007a) investigated the insights of extrinsic factors of motivation (reciprocal benefits, expected organizational rewards) and intrinsic factors (EHO, SE). These motivational factors help to enlighten IKS and AKS. He claimed that intrinsic factors are more associated with attitude and intention than the extrinsic one. Lin (2007b) examined the influencing factors of knowledge sharing process and investigated individual, technological and organizational factors. He conclude his research by giving the argument that EHO, SE and top management support are significantly associated with knowledge sharing process. Cruz et al., (2009) investigated the influence of extrinsic and intrinsic motivation on employee's knowledge transfer. They found that intrinsic motivation accelerated knowledge transfer more significantly than extrinsic motivation. Thus:

H5: Enjoyment in helping others has a significant effect on knowledge sharing behavior of University Academia

H6: Enjoyment in helping others has a significant effect on University Academia's knowledge sharing attitude

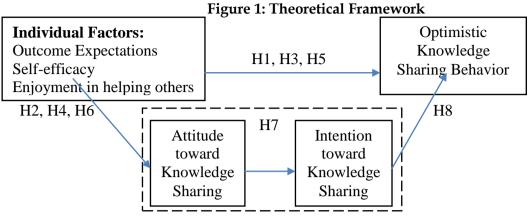
2.4 Knowledge sharing attitude, intention, behavior

TPB (Theory of Planned Behavior) and TRA (Theory of Reasoned Action) gives the theoretical base and evidence that knowledge sharing attitude is substantial conjecturer of knowledge sharing intention. Ryu Ho and Han (2003) demonstrated that intention of KS is greatly influenced by a physician's attitude toward KS. Bock, Kim and Lee (2005), explored that attitude toward KS positively influence a person's intention to share knowledge (Vraimaki, 2009). Moreover, Ramayah&Jahani (2008), elucidate that when attitude toward KS is absent, it leads to conflicts, selfishness and hindrance to share knowledge. Babalhavaeji and Zahra (2011) revealed a substantial relationship of educator's attitude toward KS and their intention toward KS.The employees who are intended to share tacit knowledge, are also motivated to share explicit knowledge, in order to accomplish organizational benefits (Reychav& Weisberg, 2010). Haunget al (2008) found that in order to cultivate positive knowledge sharing attitude, management should reflect on anticipated extrinsic rewards and sense of self-worth.According to Amireault (2008), the intention-behavior relationship is moderated by psychological variables e.g. self-efficacy and descriptive norms. He further investigate that attitude toward behavior is favorable or unfavorable appraisal of behavior.

Pavlou&Fygenson, (2006) propose that most prosperousconjecturer of behavior is behavioral intention since a person does what he intends to do. Bock et al., (2005) and Lin, (2007c) explored that attitude toward KSeffects knowledge sharing directly, as well as through mediation of intention to KS. Therefore, from the aforementioned review of literature, the following hypotheses are made:

H7:Attitude toward knowledge sharing has a significant effect on intention toward knowledge sharing of University Academia

H8:Intention toward knowledge sharing has a significant effect on University Academia's knowledge sharing behavior



3. Methodology

In a developing country like Pakistan, where literacy rate is at alarming position, the economics conditions are subject to the education level. University Academia plays a significant role in creating professionals which a particular industry require. Therefore, teaching is a highly regarded profession because it directly affects the respective industry. That's the reason of choosing University Academia as target population of study. Moreover, the concept of knowledge sharing is more common among knowledge workers and teachers are also knowledge workers of a country.

The population of study embrace University faculty members of four public sector(Islamic International University, Air University, Bahria University, Arid Agriculture University) and four private sector Universities (Iqra University, Isra University, Preston University and Foundation University) of twin cities (Rawalpindi, Islamabad). There are 1797 faculty members among the selected Universities, which were deliberated as population frame of the study.

A total of 450 faculty members were considered as sample size of study. Stratified sampling was practiced, due to four strata of sample (Lecturer, Assistant Professor, Associate Professor, and Professor). Moreover, convenient sampling was also used to select the respondent from each stratum.In order to collect data, a questionnaire was designed and measured at 5 point Likert scale. 1 denotes "Strongly Disagree", 2 represents "Disagree", 3 stands for "Neutral", 4 signifies "Agree" and 5 represents "Strongly Agree".

Four items related to "Enjoyment in Helping Others" were adopted from (Alhadyet al, 2011), three items related to "Self-Efficacy" were adopted from (Alhadyet al, 2011), and five items regarding "Outcome Expectations" were adopted from Compeau and Higgins's, 1999). (attitude toward knowledge Six items of AKS sharing) were adopted from (Babalhavaeji&Kermani, 2011); five items related to IKS (intention to share knowledge) were adopted form the study of (Babalhavaeji&Kermani, 2011) and seven items were related to KSB (knowledge sharing behavior) were embraced from the study of (van & de Leeuw, 2004). All the selected items were taken from the previous researcher's work and modified according to the need of present study. It was guaranteed in the questionnaire, that data privacy will be kept persistent and will only be used for research purpose. A total of 450 questionnaires were distributed among respondents, out of which 327 were returned back, giving a response rate of 72.6%.

Statistical package for social science (SPSS)-17 and Confirmatory factor analysis using AMOS 18.0 were executed, to comprehend the relationship between the selected variables.

Various indices were used to assess the fit for overall measurement model. The demographics of the respondents were inspected which includes department, gender, education, designation level, and teaching experience.

Table 1: Respondent's demographics									
Measure	Items	f	%	Measure	Items	f	%		
Departme	Management	73	22.3	Designation level	Lecturer	138	42.2		
nt	Sciences			-					
	Engineering/IT	89	27.2		Assistant	104	31.8		
					Professor				
	Social Sciences	74	22.6		Associate	60	18.3		
					Professor				
	Natural Sciences	91	27.8		Professor	25	7.6		
Gender	Male	183	56.0	Teaching Experience	Less than 5	120	36.7		
				(Y)					
	Female	144	44.0	. ,	6 to 10	105	32.1		
Education	Bachelors	6	1.8		11 to 15	58	17.7		
	Masters	72	22.0		More than 16	44	13.5		
	MS/M.Phil	138	42.2						
	PhD	111	33.9						

4. Analysis And Results

Reliability analysis was done to check Cronbach's alpha value. It gives an idea of internal consistency of data (Pallant, 2001) and its value ranges from 0.70 to 0.90. It was reported that all the values of Cronbach alpha were >0.70, which shows that there is internal consistency of data, above the standard value. Cronbach's alpha value for EHO was 0.795, SE: 0.724, OE: 0.773, AKS: 0.821, IKS: 0799, and for KSB it was 0.726. Descriptive analysis ensures whether the data qualifies for the further analysis or not. Results of descriptive analysis illustrate that majority of the variables have positive and significant results. Mean value of all variables is greater than three which depicts that the perception of participants is positive toward the constructs which are under measurement. The value of mean and standard deviation of all other variables found significant.To observe relationships, Pearson correlation test was performed using SPSS-17.

Table 2: Descriptive analysis of variables							
	Mean	S.D	IND	AKS	IKS	KSB	
IND	3.8637	.57286	1.000				
AKS	3.3863	.47419	.485**	1.000			
IKS	3.6483	.54333	.525**	.573**	1.000		
KSB	3.8502	.56544	.472**	.421**	.484**	1.000	

It is remarkable that all the values of Pearson correlation were at significance level of 0.000 which is considered highly significant. It is noteworthy that intention toward knoeldge sharing (IKS) was found highly correlated with individual motivational factors that incorporate enjoyment in helping others, self efficacy and outcome expectations. Moreover IKS was also found highly correlated with AKS (attitude toward knowledge sharing).

Confirmatory factor analysis was executed and various indices were used to estimate the fit for overall measurement model. Total number of variables in the model was eight while five were observed. Additionally, three variables were unobserved, five were exogenous, and three were endogenous variables. Confirmatory factor analysis confirms the affiliation of observed and unobserved variables in the proposed theoretical model. The recognition of measurement model fit leads the researcher to precede analysis with testing the structural model (Chinnaet al., 2009). This technique matches the matrix of variance-covariance.

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A model is acceptable if p>0.05, Degree of freedom <2, NFI (Normed fit index) >0.90, GFI (goodness of fit) >0.90, AGFI (adjusted goodness of fit) >0.90, CFI (Comparative fit index) >0.95, PMR (root mean square error residual) 0.000, TLI (Trucker-Lewin Index) >0.90, RMSEA (root mean square error of approximation) <0.08, P value > 0.05.

Chi-square (χ^2) value should be less than two, as suggested by Hair et al.,(2006). It depicts the data discrepancy and it is significant in this study. Bentler and Bonett (1980) recommend that the value of χ^2/d .f. should not exceed five. Degree of freedom found in the results of study is one that is less than two so it is an acceptable value of degree of freedom. They additionally suggest that the value of RMSEA should be less than 0.08. For RMSEA (root mean square of approximation), the value should be <0.08. This values ranges from 0.08 to 0.10 that indicates mediocre fit (MacCallumet al., 1996). In this study, the RMSEA value was 0.10 that is in range that is why it is a mediocre fit.

Index	Suggested	Default
Index	00	
	value	model
Chi-square (χ^2)	>0.05	4.7
Degree of freedom	<2	1
NFI (Normed fit index)	>0.90	0.990
GFI (goodness of fit)	>0.90	0.994
AGFI (adjusted goodness of fit)	>0.90	0.914
CFI (Comparative fit index)	>0.95	0.992
RMR (root mean square residual)	0.00	0.005
TLI (Trucker-Lewin Index)	>0.90	0.922
RMSEA (root mean square error of	< 0.80	0.10
approximation)		
Р	>0.05	0.30

Table 3: Summary of values

The requisite value of GFI should be >0.90 and this study found it 0.99. The proposed value for AGFI is 0.90 and this study found it 0.92.Usually, the suggested value of GFI is 0.90 or 0.95 (Miles &Shevlin, 1998). AGFI adjusts the GFI that depends on degree of freedom. The accepted value of AGFI is above 0.90. The reviewed form of NFI is CFI that captures sample size. Its value can range from zero to one. The value nearer to one, presents a good fit. For CFI, the value should be >0.95 and the value observed in the results of this study is 0.992 which is greater than 0.95.

On the other hand, TLI value should be >0.90 and the value found in this study were 0.992 that is acceptable value. NFI value was found 0.99 and it should be greater than 0.8. The value of CMIN/DF found 4.7 that is less than the five. While P value found was 0.03 which is less than 0.05 (it should be greater than 0.05). Degree of freedom is 15-14=1. Most of the prerequisite values are at acceptance level; therefore, it demonstrated that the measurement model revealed a good fit with the data. P = 0.03 (it should be > 0.05), CMIN/DF = 4.7 > 0.05, CFI = 0.992> 0.9, NFI = 0.99> 0.8, RMSEA = 0.10 (it should be < 0.08), RMR = .005 (exact fit).

Table 4: Regression weights							
			Estimate	S.E.	C.R.	Р	Hypotheses
KSB	<	IND	.264	.057	4.652	***	H1, H3, H5
AKS	<	IND	.311	.044	7.040	***	H2, H4, H6
IKS	<	AKS	.449	.057	7.873	***	H7
KSB	<	IKS	.319	.058	5.537	***	H8

The results exhibit that the individual motivational factors (outcome expectations, selfefficacy, and enjoyment in helping others) have a substantial positive relationship with AKS, and KSB, having a significant level of P value (three asterisks). Hence, the H1, H3, H5 are supported. It means that individual motivational factors are positively associate with knowledge sharing behavior of University Academia. While, H2, H4 and H6 are also supported (3 asterisks) which shows that individual motivational factors are positively associated with attitude toward knowledge sharing. AKS acts as mediation in the relationship. AKS further enhances IKS and then IKS also acts as mediation. Hence, H7 is also supported. IKS sheds a positive and significant impact on KSB (knowledge sharing behavior) that's why H8 is also supported (3 asterisks). Therefore, we conclude that mediating role of AKS and IKS is very important in the relationship because it gives better results. It is concluded that all the hypotheses are supported.

5. Discussion and conclusion

The findings of study, support theory of planned behavior that also suggests that behavior is not a one-step process. Behavior is always based on the intention, which is based on attitude. So there is need to put more focus on the individual motivational factors, that support the positive behavior toward KS. The research findings are consistent with prior literature findings. Lin, (2007a) found in his research result that individual factors (comprising: outcome expectations, self-efficacy, and enjoyment in helping others) are significantly liked with AKS and IKS of employees. Significant results concerning EHO (enjoyment in helping others)confirms the conclusion of this study via previous literature (Kankanhalliet al., 2005a; He & Wei, 2009; Hsu &Lin, 2008).

The study also found that knowledge sharing self-efficacy have a substantial effect on attitude of knowledge sharing, which is also consistent with the previous findings that self-efficacy is a key element of KSB (knowledge sharing behavior) (Kankanhalliet al., 2005a; Bock et al., 2005). Self-efficacy to share knowledge inaugurates a positive attitude and enhances the confidence in oneself. Attitude significantly affects knowledge sharing intention and it significantly enhances the behavior to share knowledge. These findings are consistent with Tohidinia&Mosakhani (2010) and Bock & Kim (2002).

This study was based on theory of planned behavior. The study concludes that individual motivational factors (outcome expectations, self-efficacy, and enjoyment in helping others) are significantly and positively related to knowledge sharing attitude and knowledge sharing behavior. Moreover, the study also found that attitude toward knowledge sharing and intention toward knowledge sharing mediates the relationship and made it a second order relationship. Furthermore, the study also concludes that attitude significantly affects knowledge sharing intention which ultimately enhances behavior of knowledge sharing.

6. **Practical Implications**

This research adds in several imperioustheoretical contributions. First, this research applies TPB (theory of planned behavior) to predict intention to share knowledge. In order to provide a better enlightenment of KSB (knowledge sharing behavior) in University faculty members, a model was built up and empirically tested. The study conclude that by promoting individual motivational factors, KS will be augmented. Secondly, the findings of this study depicts that attitude and intention acts as a mediator of knowledge sharing behavior among University academia. Attitude as a mediator, gives healthier results while without incorporating "attitude" results will be vice versa.

The findings of study are not deprived of practical implications for managers of knowledge based organizations. The research findings are applicable to the knowledge workers of educational sectoras well as, of other sectors. The University faculty should cultivate the learner's capability in exploration ofknowledge. The managers of knowledge based

organizations, should foster such factors which positively influence the attitude and behavior of knowledge workers to share their tacit knowledge.Personal outcome expectation is expressively accompanying knowledge sharing attitude, intention, and behavior of faculty members. Consequently, University Academia management should progress tools to facilitate the faculties' belief to enhance sharing intention. Though, the study focused on only educational sector while other sectors can also benefit from the study findings e.g. software houses in Information Technology and knowledge workers of other organizations. When the individual factors are satisfied, it means the faculty members are motivated. "Enjoyment in helping others" is afacet of intrinsic motivation while "outcome expectation" is a constituent of extrinsic motivation. When both the internal and external motivation are satisfied, then it leads to positive and substantial aftermaths. The faculty members, who are more energetic and lively in sharing knowledge, should be given some rewards and incentives so that they stay motivated while sharing their tacit knowledge.

7. Future line of study

This study was designed to investigate the individual motivational factors which contribute toward optimistic knowledge sharing behavior of University Academia. This study adds value to existing literature as well as provide practical implications for managers of knowledge workers. There are some limitations in this study as well, which should be addressed in future study. Firstly, data was collected only from knowledge workers of education industry of Rawalpindi and Islamabad, while others areas were ignored. Therefore, future researchers are encouraged to study other knowledge workers, and other provinces of Pakistan. Secondly, future researchers are encouraged to compare the results of public and private sector University Academia. Moreover same model should be tested in other countries as well, in order to know the cultural aspects. Thirdly, longitudinal data should be collected in order to know the results of practical implications after a certain time which validates the findings of study. Fourthly, sample size should be increased in order to have more generalized results from other cities of Pakistan. Fifthly, other individual motivational factors should also be studied. Moreover, factors other than individual motivational factors should also be studies in the model e.g. technological factors, organizational factors, social norms, and top management support. Furthermore, influence of demographic factors as moderator of study, will be an interesting study for future researchers.

References

Ajzen, I. (2001). Nature and operation of attitudes. Annual review of psychology, 52(1), 27-58.

- Ajzen, I., & Fishbein, M. (1980). Understanding attitudes and predicting social behaviour.
- Alhady, M. R. A. A. (2011). Micropropagation of Stevia rebaudianaBertoni. A new Sweetening Crop in Egypt. *Global J. Biotechnol. Biochem*, 6(4), 178-182.
- Al-Hawamdeh, S. (2003). Knowledge management: cultivating knowledge professionals. *Chandos Publishing Oxford Limited*, 81
- Aliakbar, E., Yusoff R. B. M., and Mahmood N. H. N (2012). Determinates of Knowledge Sharing Behavior. *International Conference on Economics, Business and Marketing Management. IPEDR*. 29 (2012) IACSIT Press, Singapore.
- Allamehet al., (2012). Isolation, identification and characterization of *Leuconostocmesenteroides* as a new probiotic from intestine of snakehead fish (*Channastriatus*). African Journal of Biotechnology. 11 (16). 3810-3816

- Amireault, S., Godin, G., Vohl, M. C., &Pérusse, L. (2008). Moderators of the intention-behaviour and perceived behavioural control-behaviour relationships for leisure-time physical activity. *International Journal of Behavioral Nutrition and Physical Activity*, 5(1), 7.
- Babalhavaeji, F., &Kermani, Z. J. (2011). Knowledge sharing behaviour influences: a case of Library and Information Science faculties in Iran. *Malaysian, Journal of Library & Information Science*, 16(1), 1-14.
- Bartol, K. M., & Srivastava, A. (2002). Encouraging knowledge sharing: The role of organizational reward systems. *Journal of Leadership & Organizational Studies*, 9(1), 64-76.
- Bentler, P. M., &Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological bulletin*, *88*(3), 588-606.
- Bock, G. W., & Kim, Y. G. (2002). Breaking the myths of rewards: an exploratory study of attitudes about knowledge sharing. *Information Resources Management Journal (IRMJ)*, 15(2), 14-21.
- Bock, G. W., Zmud, R. W., Kim, Y. G., & Lee, J. N. (2005). Behavioral intention formation in knowledge sharing: examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. *MIS quarterly*, 87-111.
- Bryant, S. E. (2005). The Impact of Peer Mentoring on Organizational Knowledge Creation and Sharing. An Empirical Study in a Software Firm. *Group & Organization Management*, 30(3), 319-338.
- Chatzoglou, P.D. and Vraimaki, E. (2009), "Knowledge-Sharing Behavior of Bank Employees in Greece", *Business Process Management Journal*, Vol. 15 No. 2, p. 245-266.
- Chen Wai Ling, Manjit S. Sandhu & Kamal Kishore Jain, (2008). Knowledge sharing in an American Multinational Company based in Malaysia. Retrieved July 15, 2010 from http://www/emeraldinsight.com.
- Chen, C. J., & Hung, S. W. (2010). To give or to receive? Factors influencing members' knowledge sharing and community promotion in professional virtual communities. *Information & Management*, 47(4), 226-236.
- Chen, C. J., & Hung, S. W. (2010). To give or to receive? Factors influencing members' knowledge sharing and community promotion in professional virtual communities. *Information & Management*, 47(4), 226-236.
- Chow, W. S., & Chan, L. S. (2008). Social network, social trust and shared goals in organizational knowledge sharing. *Information & Management*, 45(7), 458-465.
- Christensen, P.H. (2005), "Facilitating knowledge sharing: a conceptual framework", available at:http://openarchive.cbs.dk/bitstream/handle/10398/7486/cbs%20forskningsindberetn ing%20smg%2024.pdf?sequence¹/₄1 (accessed 29 May 2012).
- Compeau, D., Higgins, C. A., & Huff, S. (1999). c MIS-rter! y. MIS quarterly, 23(2), 145-158.
- Constant, D., Sproull, L., & Kiesler, S. (1996). The kindness of strangers: The usefulness of electronic weak ties for technical advice. *Organization science*,7(2), 119-135.
- Cross, R., & Cummings, J. N. (2004). Tie and Network Correlates of Individual Performance in Knowledge-Intensive Work. *Academy of Management Journal*,47(6), 928-937.
- Cruz, N.M., Perez, .V.M and Cantero, C.T. (2009), "The Influence of Employee Motivation on Knowledge Transfer", *Journal of Knowledge Management*, Vol. 13 No.6, PP. 478-490.
- Davenport, S., Davies, J., & Grimes, C. (1998). Collaborative research programmes: building trust from difference. *Technovation*, 19(1), 31-40.
- Disler, P. B., &Pallant, J. F. (2001). Vocational rehabilitation: everybody gains if injured workers are helped back into work. *BMJ: British Medical Journal*,323(7305), 121.

- Dovidio, J. F., Piliavin, J. A., Schroedler, D. A., &Penner, L. A. (2006). The social psychology of prosocial behavior. New Jersey: Lawrence Erlbaum Associates.
- Gumus, M., and Onsekiz, C. (2007), "The Effect of Communication on Knowledge Sharing in organizations, *Journal of Knowledge Management Practice*, Vol. 8, No. 2
- Haung, Q., Davision, R.M. and Gu, J. (2008), "Impact of Personal and Cultural Factors onKnowledge Sharing in China", *Asia Pacific Journal Management*, Vol. 25, pp. 451-471.
- He, W., Fang, Y. and Wei, K. (2009), "The role of trust in promoting organizational knowledgeseeking using knowledge management systems: an empirical investigation", *Journal of theAmerican Society for Information Science and Technology*, Vol. 60 No. 3, pp. 526-537.
- Hsu, C. L., & Lin, J. C. C. (2008). Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation. *Information& Management*, 45(1), 65-74.
- Kankanhalli, A., Tan, B.C.Y. and Wei, K.K. (2006). Knowledge producers and consumers , In Schwartz, D.J., Ed, Encyclopedia of Knowledge Management, Hershey, PA: Idea Group Reference, Pennsylvania: 459-466.
- Li, Z., Zhu, T., & Wang, H. (2010). A study on the influencing factors of the intention to share tacit knowledge in the university research team. *Journal of Software*, 5(5), 538-545.
- Lin, H. F. (2007). Effects of extrinsic and intrinsic motivation on employee knowledge sharing intentions. *Journal of information science*, 33(2), 135-149.
- Lin, H. F. (2007). Knowledge sharing and firm innovation capability: an empirical study. *International Journal of Manpower*, 28(3/4), 315-332.
- MacCallum, R. M., Martin, A. C., & Thornton, J. M. (1996). Antibody-antigen interactions: contact analysis and binding site topography. *Journal of molecular biology*, 262(5), 732-745.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. Oxford University Press, USA.
- Osterloh, M., & Frey, B. S. (2000). Motivation, knowledge transfer, and organizational forms. *Organization science*, 11(5), 538-550.
- Pavlou, P. A., &Fygenson, M. (2006). Understanding and predicting electronic commerce adoption: an extension of the theory of planned behavior. *MIS quarterly*, 115-143.
- Reychav, I.S., and Weisberg, J. (2009), "Good for Workers, Good for Companies: How Knowledge Sharing benefits Individual Employees", *Knowledge and Process Management*, Vol. 16, No. 4, pp 186–197.
- Robertson, S. & O'Malley Hmmersley, G. (2000). Knowledge management practices within a knowledge-intensive firm: the significance of the people management dimension. Journal of Europena Industrial Traininig, 24(2-4), 241–253.
- Robertson, S. & O'Malley Hmmersley, G. (2000). Knowledge management practiceswithin a knowledge-intensive firm: the significance of the people management dimension. *Journal of Europena Industrial Traininig*, 24(2–4), 241–253.
- Ryu, S., Ho, S. H., & Han, I. (2003). Knowledge sharing behavior of physicians in hospitals. *Expert Systems with applications*, 25(1), 113-122.
- Sawal M. Z. H. M. (2011). "Individual Behavior toward knowledge Sharing: An empirical study in Tertiary Institution. *International conference on management and artificial intelligence*. *IPEDR* vol. 6 (2011) LACSIT Press, Bali, Indonesia.
- Shevlin, M., & Miles, J. N. (1998). Effects of sample size, model specification and factor loadings on the GFI in confirmatory factor analysis. *Personality and Individual Differences*, 25(1), 85-90.

- Shin, C. H., Ramayah, T., &Jahani, S. (2008). Using Theory of Reasoned Action to explain intention to share knowledge among academics.
- Stasser, G., & Titus, W. (2003). Hidden profiles: A brief history. *Psychological Inquiry*, 14(3-4), 304-313.
- Szulanski, G. (1996). Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic management journal*, 17, 27-43.
- Tohidinia, Z., & Mosakhani, M. (2010). Knowledge sharing behaviour and its predictors. *Industrial Management & Data Systems*, 110(4), 611-631.
- Van den Hooff, B., & de Leeuw van Weenen, F. (2004). Committed to share: commitment and CMC use as antecedents of knowledge sharing. *Knowledge and Process Management*, 11(1), 13-24.
- Wang, S., &Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review*, 20(2), 115-131.
- Wasko, M. M., &Faraj, S. (2005). Why should I share? Examining social capital and knowledge contribution in electronic networks of practice. *MIS quarterly*, 35-57.
- Willman, P., Fenton O., Creevy, M., Nicholson, N. &Soane, E. (2001). Kowing the risks: theory and practice in financial market trading. Human Reations, 54(7), 887–910.
- Willman, P., Fenton O., Creevy, M., Nicholson, N. &Soane, E. (2001). Kowing the risks:theory and practice in financial market trading. *Human Relations*, 54(7), 887–910.
- Wing S. Chow and Lai Sheung Chan. "Social network, social trust and shared goals in organizational knowledge sharing". *Information & Management*. Vol.45, 2008, p. 458–465.
- Youndt, M. A. & Snell, S. (2004). Human resource configurations, intellectual capital and organizational performance. Journal of Manegerial Issues, 16(3), 337–360.
- Yusof, B. N. M., Talib, R. A., Kamaruddin, N. A., Karim, N. A., Chinna, K., & Gilbertson, H. (2009). A low-GI diet is associated with a short-term improvement of glycaemic control in Asian patients with type 2 diabetes. *Diabetes, Obesity and Metabolism*, 11(4), 387-396.