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## Knowledge-sharing behavior in dairy sector of Pakistan

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### Abstract

This study is about knowledge sharing behavior in dairy sector. Two-hundred middle managers (with professional qualifications) from five industrial units in Pakistan were selected for study. Fifty-seven managers participated in the study (29 percent of the sample). Research model and hypotheses were based on behavioral theories, i.e., TRA, TPB, and TAM. Data were collected through a questionnaire using Likert scale. Spearman's and Pearson's correlation coefficients and structural equation model among different variables tested hypotheses of the research modal. The study proved that attitude, intention, and behavior had accepted mutual positive direct effects for knowledge sharing in dairy sector. Conversely, subjective norms and perceived behavioral control had non-significant values but weak positive direct effects toward knowledge sharing. Findings of this study are useful for better understanding about behavioral influences for knowledge sharing. Furthermore, it is of practical use for the organizational administration involved in knowledge management initiatives in geographical circumstances of Pakistan.

### Introduction

Knowledge has become an accepted resource for organizational sustainability in present age (Robinson, 2012). That's why; knowledge management has been prioritized in all sectors. Apex management considers knowledge management as a tool (Martensson, 2000), initiative / system (Wong & Aspinwall, 2006), or as a business strategy (Drew, 1999) for organizational goals of improved performance (Fugate, Stank, & Mentzer, 2009), competitive advantage (Gupta & McDaniel, 2002), and innovation (Kamath, Rodrigues, & Desi, 2011). Existence of embodied and embedded knowledge is an accepted reality but its flow, in the form of knowledge sharing, changes the overall context (Decarolis & Deeds, 1999). Therefore, knowledge sharing has been identified as the major segment of knowledge management. In broader perspective, information and communication technologies (ICTs) facilitate knowledge sharing (Fei, 2011). Despite all ICTs, individuals are chief actors for sharing knowledge and information (Elmholdt, 2004). It is one's behavior that counts for knowledge sharing in an organization (Lam & Lambermont-Ford, 2010).

Many researchers have gone through the various aspects of k-sharing and human behavior. Hsu et al. (2007) proposed their social cognitive theory based model in their quantitative study of 39 societies comprising nine types of virtual communities in different sectors. Bock and Kim (2002) discussed organizational reward systems, Michailova and Hutchings (2006) elaborated cultural influences, Hsu and Lin (2008), and Quigley et al. (2007) explained motivation, and Chow and Chan (2008) illustrated trust, with special reference to knowledge sharing behavior. Similarly, knowledge sharing in different sectors was focal point in recent researches. Lawson et al. (2009) discussed industrial sector, Hooff and Huysman (2009)

concentrated on services sector, Rowley et al. (2012) brightened government sector, and many others focused on knowledge sharing in some specific sector organization.

Some researchers discussed knowledge sharing behavior in Pakistan from different angles (Ellahi & Mushtaq, 2011; Lodhi & Ahmad, 2010; Rehman, et al., 2011). Just a few researches, in general, encircled knowledge sharing in industrial or corporate sector of Pakistan (Bano, Rehman, & Khan, 2010). There is hardly any research on knowledge sharing behavior in dairy industry, in general, and dairy sector of Pakistan, in particular.

### **Problem statement**

Main center of attention behind this research work is knowledge sharing behavior with special reference to dairy sector in Pakistan. This study highlights and clarifies the role of behavioral aspect in knowledge sharing in organizational settings of Pakistan. Similarly, this research has examined knowledge sharing behavior in the light of widely accepted psychological concepts explained by theory of reasoned action (TRA), theory of planned behavior (TPB), and technology acceptance model (TAM). Additionally, it presents a scenario that boosts interest and awareness of middle management for understanding and encouraging knowledge sharing behavior in their organization. Moreover, this research contributes for the promotion of knowledge management research culture in Pakistan.

### **Literature review**

Knowledge is well accepted resource and asset of routine life in present age. Ownership of knowledge is a complex phenomenon, either it lies with individuals who possess knowledge or is from the belongings of organization that hires the knowledge based individuals. Wide spread knowledge management literature promotes the idea that frequent access, control, and ownership of knowledge goes to conventional management rather than individuals (Elmholdt, 2004). Some studies support the view that individuals are actual owners of all knowledge they possess (Bock et al., 2005). Bock (2002) and Goh (2002) illustrate that organizations do heavy investments on employees for their motivation for knowledge sharing and announce attractive incentives on it. On the other side, Dalkir (2005) emphasizes that organizations reward individuals for what they know and not for what they share in organizational settings.

Research reveals that knowledge is the outcome of cognition and learning (Csibra & Gergely, 2006). Literature on distributed cognition makes it clear that knowledge and competence reside in person and its environment, not only in person (Cools, Broeck, & Bouckenooghe, 2009). In addition, cognition, learning, and knowledge are distributed in interpersonal relations and are the upshot of social practice (Przemyslaw & Magdalena, 2009). Thus knowledge is an activity rather than entity, object, or a thing (Polanyi, 1961). So, as an activity, knowledge is context bound and is seen as constructed in individual-environment interaction. In the words of Elmholdt (2004), "it becomes a contradiction in terms to search for a location of knowledge in employees' heads or in companies' databases - knowledge is in practice." Despite all controversies, researchers have unanimous opinion that usability and importance of knowledge sharing is a reality in routine business (Alavi & Liedner, 2001).

Knowledge sharing is the most important segment and a hectic challenge of knowledge management. There is no single accepted definition for knowledge sharing (Earl & Scott, 1999). Anyway, some researchers attempted to define knowledge sharing for better understanding. Hansen (1999) declares knowledge sharing to be the provision or receipt of task, information, know-how, and a feedback regarding a product or procedure. Similarly, according to the definition by Lee (2001), knowledge sharing is a "set of activities of transferring or disseminating knowledge from one person, group or organization to another." So, knowledge sharing is something more than communication, and information distribution. In the words of Lasswell (1948), communication is just to answer who? says what? in which channel? to whom? with what effect? Similarly, information distribution is just "distribution of information" (Schement & Curtis, 1995). Cognitive factor lacks in both notions of communication and information

distribution. Conversely, in knowledge sharing, there is involvement of learning something from someone. In other words the process of re-enactment takes place in knowledge sharing (Hendriks, 1999). As knowledge sharing involves cognition, so, human behavior counts as the most active contributor for knowledge sharing. Many attempts, models, and designs have been introduced from different horizons, to share knowledge capital, at both individual and organizational level. But the research, so far, could not finalize any general formula or model that could be adopted by all organizations for sharing their knowledge capital (Riege, 2005).

### **Model and hypotheses**

The Theory of Reasoned Action (TRA) developed and further extended by Martin Fishbein and Icek Ajzen (1975, 1980), and the Theory of Planned Behavior (TPB) developed by Icek Ajzen (1985) are widely accepted theories that deeply explains attitude and behavior in social psychology research. Another extension of TRA is in the form of Technology Acceptance Model (TAM), introduced by Davis (1989) and Bagozzi and Warshaw (1992).

In TRA, major constructs for human action are behavioral intentions, attitudes, and subjective norms in such a relation that behavioral intentions are the outcome of one's attitude toward behavior and subjective norms (Fishbein & Ajzen, 1975, 1980). While in TPB, the phenomenon of Perceived Behavioral Control (PBC) was introduced to cover non-volitional behaviors, as TRA covered only volitional behaviors. It indicated that behavioral intentions were the sum of attitude toward behavior, subjective norm, and perceived behavior control (Ajzen, 1985). The concept of PBC got its roots from Bandura's self-efficacy theory that was evolved from social cognitive theory (Bandura, 1977, 1980). PBC gives a touch of human feelings to the TRA. Summarizing above, TPB promotes the view that individuals who have better behavioral attitude, have supporting subjective norms, and have greater perceived behavioral control, they have strong behavioral intentions for the subject in question. Obviously, individuals with strong behavioral intentions have better attitude toward the subject under investigation.

Furthermore, Bandura (1977) described that self-efficacy was positively related to human behavior and Ajzen (2002) proclaimed that self-efficacy and perceived behavioral control, were the same in his theory of planned behavior. Thus, behavioral intentions and perceived behavioral control both have positive correlation with human behavior in theory of planned behavior.

Both TRA and TAM have same behavioral descriptions, "if somebody has intentions to do anything then he can do that without any limitations." But contrary to TRA, TAM presents technology perspective with measures of 'usefulness' and 'ease of use'. TAM describes a positive relation between technology acceptance and human behavior. On the basis of above assumptions, following research hypotheses were inked for this study:

H1: A person, who has better attitude toward knowledge sharing, has positive behavioral intentions for knowledge sharing.

H2: A person having supporting subjective norms for knowledge sharing has good behavioral intentions to share knowledge.

H3: Someone, with good perceived behavioral control (PBC) for knowledge sharing, has strong behavioral intentions to share knowledge

H4: An individual, with strong behavioral intentions to share knowledge, has better knowledge sharing behavior.

H5: Somebody, having strong perceived behavioral control (PBC) over sharing knowledge, has better knowledge sharing behavior.

H6: Anyone, with improved information technology acceptance for sharing knowledge, has enhanced knowledge sharing behavior.

### **Method**

The research instrument in this study was a questionnaire. This questionnaire was already used by Chatzoglou and Vraimaki (2009) in their research on knowledge-sharing

behavior of bank employees in Greece. They also ensured its validity and reliability. The questionnaire was reshaped for present study. In a new format, the questionnaire comprised of 29 statements covering six different aspect regarding knowledge sharing, i.e., behavior, level of information technology usage, intention to share knowledge, attitude toward knowledge sharing, subjective norms about knowledge sharing, and perceived behavioral control to knowledge sharing. There were four to six structured questions under each heading with a 5-point Likert scale. The participants were asked to mark their response from 1 to 5 against each statement, 1 = Not at all and 5 = Very high level. Some demographic details were also included in the questionnaire at the end consisting on gender, age, experience, and designation with organizational affiliations.

Population of this study was comprised of five independent industrial units producing dairy products. Each industrial unit had one or more branches but the common factor under consideration was - they should have strength of at least 200 professional middle managers. Professional staff means those employees who had professional qualifications in their respective discipline like Masters in Business Administration (MBA), Masters in Commerce (M. Com), a university degree in computer science, and graduates of different disciplines of engineering. Forty respondents were selected in each industrial unit of the said population using random sampling technique. Two-hundred questionnaires were administered by 'in person drop-off method.' Just a few respondents filled questionnaire and returned it back at the spot. Remaining asked to fill the questionnaire on a later time or demanded soft copy to send them by e-mail. Some responses were collected on first and second follow up round on weekly basis. Some respondents filled questionnaires after telephonic reminders. A very small number of responses received via e-mail. Fifty seven usable questionnaires received that were 29 percent of total sample.

### Results and discussion

Descriptive statistics for demographic characteristics revealed that majority of respondents in gender were male (51, 90%), of age between 36 and 45 years (28, 49%), with experience between six and 10 years (26, 46%) (table 1).

Table 1. Demographic characteristics of respondents

Measure	Item	Frequency	Percent
Gender	Male	51	90
	Female	6	11
Age	Up to 25 years	9	16
	26 - 35 years	16	28
	36 - 45 years	28	49
	46 years and above	4	7
Experience	Up to 5 years	14	25
	6 - 10 years	26	46
	11 - 15 years	7	12
	16 - 20 years	8	14
	21 years and above	2	4

Normality of data was checked. Shapiro-Wilk test results showed significance values for behavior (0.027), intention (0.021), attitude (0.004), subjective norms (0.008), and perceived behavior control (0.012) for knowledge sharing in dairy sector. These variables are not significant ( $p < .05$ ). It supported the view that non-parametric tests or their conditions better fit the data of these variables. Conversely, data for level of IT usage (0.050) is normally distributed that satisfied the condition for parametric analysis.

Table 2 showed the Spearman's correlation coefficients values for intention to share knowledge and perceived behavioral control toward behavior, attitude toward intention and subjective norms for knowledge sharing in dairy sector. Similarly, parametric test of correlation - Pearson's coefficient (.266) was found significant between behavior and level of IT usage (.046) at  $p < .05$ .

	Behavior	Intention	Attitude	Subjective
Behavior				
Intention to share knowledge	.369**			
Attitude toward k-sharing	.252	.268*		
Subjective norms about k-sharing	.171	.176	.313*	
PBC towards k-sharing	.285*	.056	.167	.060

\*Values are significant at  $p < .05$

\*\*Values are significant at  $p < .01$

The research model was tested by using Structural Equation Modeling (SEM) software package to examine the relationships between latent variables. Figure 1 presents the structural model along with path coefficients and factor loading, produced by LISREL 9.10.

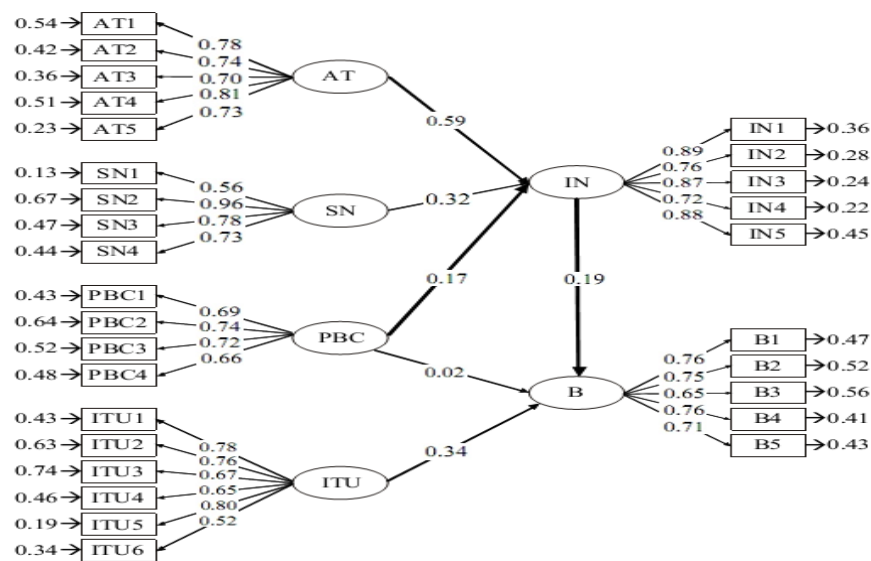


Figure 1. Structural Model of Research along with path coefficients and factor loading

On the basis of above analysis, hypotheses testing results were concluded in the form of table 3.

H1 was accepted as it proposed that a person, who has better attitude toward knowledge sharing, has positive behavioral intentions for knowledge sharing. Research results proved a strong positive direct effect of attitude toward knowledge sharing (path coefficient = 0.59) and a statistical significant value 0.04 in their relationship at  $p < .05$ . This result is similar to the descriptions of Ajzen's TPB and TRA. This is also consistent with other recent researches (Hoof & Jong, 2009; Pradeep, 2012).

H2 was rejected as it emphasized that a person having supporting subjective norms for knowledge sharing has good behavioral intentions to share knowledge. It did not happen in all circumstances. Research outcome revealed that subjective norms had moderate positive direct effect (path coefficient = 0.32) toward intentions to share knowledge with an insignificant value

at  $p < .05$  level. Therefore, subjective norms were not always the contributor for setting behavioral intentions. These results were contrary to the well established behavioral theories - TPB and TRA. In a recent research, conducted by Pradeep (2012), subjective norms had insignificant influences toward behavioral intentions. These insignificant values were, most probably, due to small sample size.

Table 3. Hypothesis testing results

Hypothesis	Path	Path coefficient	Remarks
H1	Attitude → Intention	0.59	Strong positive direct effect that is significant
H2	Subjective norms → Intentions	0.32	Moderate positive direct effect that is insignificant
H3	PBC → Intention	0.17	Weak positive direct effect that is insignificant
H4	Intention → Behavior	0.19	Weak positive direct effect that is significant
H5	PBC → Behavior	0.02	Weak positive direct effect significant
H6	Level of IT usage → Behavior	0.34	Moderate positive direct effect that is significant

H3 was rejected as it was not always the case; it supported the view that someone, with good perceived behavioral control (PBC) for knowledge sharing, has strong behavioral intentions to share knowledge. Perceived behavioral control had weak positive direct effect (path coefficient = 0.02) and insignificant relational value at 0.05 level toward intention to share knowledge. These results were contrary to the descriptions by Ajzen and Fishbein (1980), and Ajzen (1985) about PBC and intention relationship, but were identical to the research conducted by Hooft and Jong (2009). They also calculated that PBC was positively correlated with intention with a small and non-significant variance in intention. They also described both sample size and sample type as the reason of these results.

H4 was accepted. It stated that individual, with strong behavioral intentions to share knowledge, has better attitude toward knowledge sharing. The study results presented weak positive direct effect (path coefficient = 0.19) but with significant relational value 0.005 at level 0.05 for behavioral intentions for knowledge sharing to actual behavior of knowledge sharing. Scholz et al. (2012) research study supported this research by illustrating that intentions were the most important predictor of behavior in line with the assumptions of the planned behavior.

H5 was accepted. It recommended that somebody, having strong perceived behavioral control (PBC) over sharing knowledge, has better knowledge sharing behavior. Perceived behavioral control had weak positive direct effect (path coefficient = 0.02) but a significant relational value of 0.03 ( $p < .05$ ) for personal behavior toward knowledge sharing. These results strengthened the views of Ajzen (1991) regarding perceived behavioral control contributions for behavioral intentions and for ultimate behavioral achievements. It was similar to the Chatzoglou and Vraimaki's (2009) findings.

H6 was also accepted. It proposed that anyone, with improved information technology acceptance for sharing knowledge, has enhanced knowledge sharing behavior. The results supported the hypothesis as a moderate positive direct effect of level of information technology usage (path coefficient = 0.34) toward personal behavior for knowledge sharing with a significant value (0.567) at .01 level. Ajzen and Fishbein (1980) considered the effects of external variables on behavior at the time of behavioral intention. Yaobin, Tao and Bin (2009)

supported this notion in their research study that level of IT usage contributes for individual's behavior to perform specific task.

### Conclusion

Research model for this study was based on behavioral theories preferably the theory of planned behavior. This model has limitations of sample in terms of size and type for its accuracy and validity in research. Further, it discussed behavior internally in the form of individualistic behavior. External factors like culture, overall environment, and demographic aspects affecting on human behavior have been put aside. Research results in a small sample just point out positive trends rather than verifying some hypotheses. Like in this research, subjective norms and perceived behavioral control for knowledge sharing in dairy sector had moderate and weak positive direct effect but with non-significant values toward intentions for knowledge sharing in dairy sector. These relational values for subjective norms and perceived behavioral control may be significant in a large sample size and in a cross-sectional generalized study. Information technology usage was external factor in the research model. Behavioral research for external factors is mostly context bound that showed mixed trends in different studies. Therefore, it is not compulsory that positive correlation of IT usage in dairy sector with knowledge sharing behavior in dairy sector will always be significant in all circumstances. No doubt, IT contributes a lot for improvement of organizational structure, processes, and overall performance. But human interactions, coordination and connections have their own role particularly for knowledge sharing in organizations. In short, in behavioral study, both internal factors like motivation and external factors like demographic, cultural, and social aspects present a comprehensive scenario that affect individual's behavior, in general, and for knowledge sharing, in particular.

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