

Knowledge Management Enablers: A Comparative Study of Traditional and Technical Universities

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Abstract

Knowledge management is essential to manage the knowledge flow of the institution. The present study is based on primary data gathered with the help of questionnaire comprising of two sections. The first section contained demographics of the respondents and second section contained twenty six statements about knowledge management enablers in universities. Primary data based on 100 respondents was analyzed in order to identify the various factors of knowledge management enablers in universities. Further data was subjected to correlation, factor analysis and t- test. Correlation analysis was used to assess the relationship of knowledge enabler's factors and standard deviation was calculated to understand the variations in data collected through responses. Factor analysis was basically used to reduce the data for further analysis and t-test is used to check the significant difference between the traditional and technical universities. All twenty six variables were almost significantly correlated. Factor analysis brought out five factors in all explaining 72.779% of total variance. The derived factors were named as Mutual Trust, De-Centralization, Technology, Collaboration and Formalization. It is found that there is no significant difference between the level of knowledge management enablers in traditional and technical university.

Keywords: Knowledge management enablers, traditional university, technical university, comparative study, Haryana.

1. Introduction

Knowledge management is a new buzz word in today's business concept. With the faster growth in knowledge based economy, the role of information technology in the knowledge intensive service sectors are growing even faster. For the effective implementation of knowledge management system in organization, it is crucial to understand the process of knowledge management which

comprises mainly of knowledge acquisition, knowledge creation, knowledge sharing and its application.

Bloom's Taxonomy termed to be an example of knowledge management which is used by many teachers to set the learning objectives for the students and to encourage them to "climb to a higher level". Taxonomy is hierarchical and characterized into six stages as follows: creating, evaluating, analyzing, understanding and remembering.

The concept of knowledge management has been discussed broadly in literature. The rest of the paper is structured as follows: first section defines the statement of the problem regarding the paper. Next section depicts the review of literature based on concept of various knowledge management enablers used in the organization. Further this study composed of objectives and research methodology. Thereafter the results are analyzed and discussed by keeping in view the specified research objectives. The paper is wrapped up in the last section in the form of conclusion.

2. Review of Literature

Moh'd Al-adaileh, Al-Atawi (2011) said that cultural attribute of trust, innovation, and information flow, supervision, and reward have an impact on knowledge exchange within the context of STC. Mohamed, Murray & Mohamed (2010) carried out the study that Due to the geographical separation and multifaceted nature of international sustainable development, it cannot be carried out without ICT's support. However, for ICT infrastructure to be translated into worthwhile returns, the organization must adopt knowledge-oriented ICT infrastructure. Yap L.S., Tasmin, Rusuli and Hashim (2010) described that KM practices in MSC status organizations are at medium level. There are significant differences in KM practice with respect to age of respondents and job designation. Sufficient attention should be given to culture, information technology, organization structure and people to achieve success in KM practices. Javanmard, Nezamabadi and Larki (2010) made the fact that IT and organizational

culture is suitable for KM implementing in organization. Saeed, Tayyab, M. Anis-Ul-Haque, Ahmad and Chaudhry (2010) found in his study that collaboration, formalization and trust significantly predict knowledge management practices and there are significant difference with reference to levels of managerial positions and knowledge management process. Arsenijevic, Tot, Nešic, Andevski and Arsenijevic (2009) revealed from his study that experimenting and learning culture is very important, individual and influential factor for both groups of respondents. The results have also shown that it is in correlation with the knowledge management processes. Bechina and Ndlela (2009) highlighted that factors at the organizational level that contribute to the KMS effectiveness are related to leadership, training, clear business strategy, aligning business goal with the technologies, collaboration, adaptive culture. Rhodes et al. (2008) performed a study that IT systems, structured learning strategies, innovative organizational culture, and flexible structure and design are the actors that the influences knowledge transfer. Soonhee Kim and Hyangsoo Lee (2006) found that social networks, centralization, performance-based reward systems, employee usage of IT applications and user-friendly IT systems are significant variables that affect employee knowledge-sharing capabilities in public and private organizations. Ladd and Ward (2002) identified that Organizations with cultural traits exhibiting openness to change and innovation as well as a task-centered orientation tended to be conducive to knowledge transfer.

3. Objectives

The main objective of this study is to identify the factors of knowledge management enablers in universities and to compare the level of knowledge management enablers in traditional and technical universities.

4. Research Methodology

The present study is based on primary data collected through field survey and mailing by administering well structured questionnaire and secondary data has been collected from websites, books and journals etc. The questionnaire comprising of mainly two sections. The first section contained demographics of the respondents and second section contained 26 statements about knowledge management enablers. *Knowledge Management Enablers Scale* developed by Lee and Choi (2003) was used to measure the factors of knowledge management enablers. The respondents were asked to rate the statements on a five point rating scale where one indicated that respondents were strongly disagree, two meant for disagree, three for neutral, four indicated agreeing and five meant for strongly agree about what was described in statements. These 26 statements can be seen through Exhibit 1.

Exhibit 1 Description of variables

Variables	Description
V1	My institution provides information technology support for collaborative work regardless of time and place
V2	My institution provides information technology support for communication among the institution
V3	My institution provides information technology support for searching and accessing necessary information
V4	My institution provides information technology support for simulation and prediction
V5	My institution provides information technology support for systematic storing
V6	We can take action without a supervisor
V7	We are encouraged to make our own decisions
V8	We do not need to refer to someone else to make decisions
V9	We do not need to ask our supervisor before taking action
V10	We can make decisions without approval
V11	In my institution, there are many activities that are covered by formal procedures
V12	In my institution, contact with our institution is on a formal basis
V13	In my institution, rules and procedures are typically written
V14	In my institution, we cannot ignore the rules and reach informal agreements to handle some situations
V15	In my institution, we cannot make our own rules on the job
V16	I am satisfied with the amount of collaboration
V17	Our colleagues are supportive
V18	Our colleagues are helpful
V19	There is a willingness to collaborate across other departments within my institution
V20	There is a willingness within my institution to accept responsibility for failure
V21	Our colleagues are generally trustworthy
V22	Our colleagues have reciprocal faith in other members' intentions and behaviors
V23	Our colleagues have reciprocal faith in each other's ability
V24	Our colleagues have reciprocal faith in others' behaviors to work toward institution goals
V25	Our colleagues have reciprocal faith in others' decision towards institution interests than individual interests
V26	Our colleagues have relationships based on reciprocal faith

Table 2
Distribution of Sample

Demographic Variables	Sub Groups	Frequency	Percentage
Sex	Male	44	44%
	Female	56	56%
	Total	100	100%
Age (Years)	Under 25	24	24%
	25 to 35	44	44%
	35 to 45	14	14%
	45 to 55	16	16%
	55 and more	2	2%
	Total	100	100%
Highest Education Level	Post Graduate	55	55%
	M. Phil.	8	8%
	Doctorate	37	37%
	Total	100	100%
Type of Institution	Traditional University	50	50%
	Technical University	50	50%
	Total	100	100%
Designation	Research	50	50%
	Scholar	50	50%
	Faculty	100	100%
	Total	100	100%
Research Experience	Less than 1 year	19	19%
	1yr to 3 yrs	49	49%
	3 yrs to 5 yrs	7	7%
	5 yrs and more	25	25%
	Total	100	100%

The questionnaire was administered to 100 respondents of two universities of Haryana (50 from traditional university and 50 from technical university). 50 respondents of each university were segregated into 25 faculty members and 25 research scholars. Table 2 explains the distribution of sample.

Data gathered was analyzed with the help of statistical tools like factor analysis, mean, standard deviations, correlation and t- test. Mean was used to assess the frequency and percentage extent of certain variables related to demographic information. Correlation was used to assess the relationship of knowledge management enabler's variables. Standard deviations were calculated to understand the variations in data collected through responses. Factor analysis was used to reduce the data for further analysis and t test was used to compare the level of knowledge management enablers in traditional and technical university.

Reliability and Validity

Cronbach alpha is used for examining the reliability of the instruments. Alpha value of all 26 variables was calculated as 0.824 which meet the minimum criteria of alpha value i.e. greater than 0.60. For convergent validity, items having item-to-total correlation scores lower than 0.3 were dropped from further analysis.

Table 3
Factor Loadings of Varimax Rotated Principal Components

Factors	Eigen Value	Loadings	% of Variance
F1 Mutual Trust	6.674 29.018%		
Our colleagues have reciprocal faith in each other's ability		0.812	
Our colleagues have reciprocal faith in others' decision towards institution interests than individual interests		0.808	
Our colleagues have relationships based on reciprocal faith		0.803	
Our colleagues have reciprocal faith in other members' intentions and behaviors		0.801	
Our colleagues have reciprocal faith in others' behaviors to work toward institution goals		0.714	
Our colleagues are generally trustworthy		0.667	
There is a willingness within my institution to accept responsibility for failure		0.655	
I am satisfied with the amount of collaboration		0.489	
F2 De- Centralization	4.580 19.914%		
We can make decisions without approval		0.935	
We do not need to ask our supervisor before taking action		0.934	
We do not need to refer to someone else to make decisions		0.930	
We are encouraged to make our own decisions		0.930	
We can take action without a supervisor		0.930	
F3 Technology	2.887 12.550%		
My institution provides information technology support for collaborative work regardless of time and place		0.857	
My institution provides information technology support for communication among the institution		0.792	
My institution provides information technology support for systematic storing		0.788	
My institution provides information technology support for searching and accessing necessary information		0.765	
My institution provides information technology support for simulation and prediction		0.711	
F4 Collaboration	1.493 6.490%		
Our colleagues are helpful		0.824	
Our colleagues are supportive		0.815	
There is a willingness to collaborate across other departments within my institution		0.641	
F5 Formalization	1.105 4.806%		
In my institution, we cannot ignore the rules and reach informal agreements to handle some situations		0.841	
In my institution, rules and procedures are typically written		0.811	

KMO = 0.785
 Bartlett's Test of Sphericity Chi- Square = 1730.259
 Degree of freedom= 253, Sig. = 0.000

Factor analysis is used to check the discriminant validity. Because each variable was measured by multi-item constructs, factor analysis with varimax was adopted to check the unidimensionality among items. Items with factor loading values lower than 0.5 were deleted. All constructs have higher cutoff alpha values, ranging from 0.673 to 0.964 (Table 4). Relatively high values of reliability and validity imply that the instruments used in this study are adequate. Analysis was performed on 26 items that measured the components of knowledge management enablers. Among them, item related to knowledge management enablers V11, V12 and V15 had loading of more than 0.50 but had item-to total correlation score is less than 0.3 (i.e. -0.099, -0.110 & -0.079) and were dropped. One item from Factor 1 i.e. V16 had a factor loading 0.489 which is less than 0.50 so were dropped and the Cronbach alpha of Factor 1 after deleted V16 item is 0.896.

5. Results and Discussions

Analysis of data encompasses studying the tabulated material in order to identify the factors of knowledge management enablers. Primary data based on 100 respondents both from traditional and technical university were analyzed to assess the factors of knowledge management enablers. The Table 2 provide an insight that the composition of male and female titled towards female side (56%) and respondents above the age of 55 years are very few, most of the respondents fall in the age group of 25-35 yrs with post graduation as their highest education level and with a research experience of 1- 3 yrs. Further data was subjected to correlation and factor analysis. All the 26 variables are almost significantly correlated. Principal component analysis using varimax rotation was conducted to test the emergence of 3 factors which was actually defined in knowledge management enablers scale. The number of factors actually extracted was determined by the number of items with Eigen value more than 1. For missing values, cases were excluded list wise. Factor loadings less than 0.5 were suppressed. The original knowledge management enabler's scale had 3 dimensions 'technology', 'structure' and 'organization culture'. But the Eigen values indicated five factors explaining 72.779% of total variance and named as Mutual Trust, De- Centralization, Technology, Collaboration and Formalization which can be seen from Table 3.

These factors were further subjected to statistical tools like inter- factors correlation and t- test. Further results have been explained by taking five factors into consideration. Table 4 explained the inter factor correlation and alpha values. All factors were found to be moderately correlated. Table 5 depicts the mean, standard deviations, ranks based on mean, t values and significant values. Standard

deviations were found varying between 0.55133 and 1.14887. The factors mean scores were found between 2.2640 and 3.9533.

On examining the Table 5, it is illustrated that in the traditional university, 'collaboration' with mean rank 3.9533, 'technology' with mean rank 3.8640, and likewise 'trust' with mean rank 3.5825 have been ranked at first, second and third place among the factors of knowledge management enablers. Whereas the least importance is given to 'formalization' with mean rank 3.5300 and 'De-centralization' with mean rank 2.2640.

Similarly in technical university 'technology' with mean rank 3.9520, 'collaboration' with mean rank 3.900 and likely 'formalization' with mean rank 3.7200 have been ranked at first, second and third place. It is perceived that the important role of information technology is to support communication, collaboration, knowledge seeking and enable collaborative learning (Ngok, 2005). Information technology has an active role and is a key enabling factor in knowledge management (Davenport and Prusak, 1998). Organization culture also played a stimulating role by providing a suitable environment for knowledge exchange and supporting the knowledge activities (Janz and Prasmphanich, 2003).

Table 4
Inter Factor Correlation and Alpha Values

Factors	F1	F2	F3	F4	F5
F1	1				
F2	0.28	1			
F3	0.348**	0.80	1		
F4	0.644**	0.41	0.271**	1	
F5	0.086	-0.236*	0.151	-0.085	1
No. of Variables	7+1 Dropped	5	5	3	2
Alpha Values	0.895 (8items) 0.896 (7items)	0.964	0.859	0.8206	0.673

** Correlation is significant at 0.01 level

* Correlation is significant at 0.05 level

Factor's Comparisons between Traditional and Technical Universities

The significance value of t test (>0.05) which is depicted from Table 5 shows that there is no significant difference between the traditional and technical university with regard to the factors of knowledge management enablers of the institution such as mutual trust, technology, collaboration, formalization and de- centralization. The mean value regarding the first factor 'trust' is 3.5825 for traditional

university and 3.6175 for technical university, which is insignificant as per the t value (-0.263). The technical university has a little edge over the traditional university concerned with mutual trust, technology, formalization and de-centralization. As far as collaboration is concerned traditional university is dominant over the technical university.

Table 5

KM Enablers	Institution Type	Ranks	Mean	S.D.	t value	df	Sig (two tailed)
F1 Mutual Trust	Traditional University	3	3.5825	0.55133	-0.263	98	0.793
	Technical university	4	3.6175	0.76407			NS
F2 De-Centralization	Traditional University	5	2.2640	1.14887	-0.261	98	0.794
	Technical university	5	2.3240	1.14563			NS
F3 Technology	Traditional University	2	3.8640	0.71422	-0.646	98	0.520
	Technical university	1	3.9520	0.64594			NS
F4 Collaboration	Traditional University	1	3.9533	0.70954	0.344	98	0.732
	Technical university	2	3.9000	0.83639			NS
F5 Formalization	Traditional University	4	3.5300	0.85362	-1.173	98	0.244
	Technical university	3	3.7200	0.76372			NS

6. Conclusion

It is evident from the results and discussions that knowledge management enablers are primarily followed by five factors such as mutual trust, de-centralization, technology, collaboration and formalization. The knowledge management enablers facilitate the easy flow of knowledge in the universities.

Since no significant difference is found between traditional and technical university on the basis of various factors of knowledge management enablers. But it is found from the results that technical universities are gaining an edge over the traditional universities based on the mean score.

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