



A STUDY ON DEMOGRAPHIC IMPACT ON KNOWLEDGE MANAGEMENT IMPLEMENTATION IN INDIAN ARMY

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Abstract:

Demographic factors in Army parlance are age, years of experience, educational qualification and the rank. The paper analyses the impact of demographic factors in implementation of Knowledge Management in Indian Army in particular the personnel from Corps of Electronics and Mechanical Engineers. The aim was to find if, any significant relation exists between the Demographic pattern and implementation of Knowledge Management. The results will be helpful in designing the Knowledge Management architecture for Indian Army.

Key Words: Knowledge Management, Army Knowledge Management, Demographic & Implementation

1. Introduction:

Technology has brought groups, individuals and organisations closer than never before (Skyrme & Amidon 1998, Zack 1999). The knowledge economy is dominating over the industrial economy (Drucker, 1993) and developing intellectual capital through knowledge creation and sharing on a global scale have emerged as the parameters of success for organisations in the 21st century (Ichyo and Nonaka, 2007). Armed Forces are one such organisation that is extremely complex and has a huge dependency on its knowledge base. Being the national security instrument, there is very little scope for error in this capital-intensive organisation. Within these parameters, it also has to keep pace with the peers. Battle space management will only be effective by information superiority. Application of knowledge management (KM) is the key to achieving this superiority. This is an inevitable means and can be achieved through the creation of knowledge enhancing processes and managing the knowledge assets judiciously. Envisaging a future battlefield which will be Network Centric, there will be predominance of technology based weapon systems and equipment and in this scenario; the one who has the knowledge edge in the battlefield will reign superior over the others (SG McIntyre et.al, 2003). Therefore, there is no choice, but to move towards a knowledge-based system for realisation of future goals and for a future ready Armed Forces.

2. Knowledge Management:

Most important of all resources is the knowledge and intellectual resource in the world economies of today and the future (Hinds and Patterson, 2001). The significance of Knowledge Management as an independent field altogether is increasing in the research field as well as the corporate sector. Knowledge Management is emerging as the next big field and expanding its influence into all boundaries. Knowledge is providing the much-needed edge in the extremely competitive environment. Therefore, to remain relevant, organisations have to spread their knowledge base and include all employees in its umbrella not just the experts. Understanding how this knowledge is created within the organisation and its role are what is essential for the development of a KM model within the organisation (Gold, 2001). It is also the prerequisite for any kind of KM innovation.

3. Knowledge Management for the Army:

The fourth dimension of the war is information superiority and this will have a decisive contribution to battlefield outcome. Sharing of information data within the three wings of the armed forces has thus assumed tremendous importance for military environments. Rapid change in military technology constantly affects and changes the resultant doctrines and organisations. Military intelligence, both strategic and tactical, has to be filtered through multiple sources thus making problem-solving and decision-making more complex, which affects the command and control as the soldier is also now a computer warehouse.

The army knowledge management as a study transforms the military force into a centric knowledge force. The strategy includes robust and affirmative goals that have a positive bearing on decision making. The battlefield scenario will often be knowledge based than present information based. The Army Knowledge Management (AKM) provides an integral approach to identify, retrieve, evaluate, discriminate and store tactical knowledge to meet military aims. Largely there are two types of AKM-tacit knowledge and explicit knowledge. Tacit knowledge is an abstract culture where the storehouse is carried in the people's mind. This cannot be easily assessed or shared. Either you have it or you don't. More often than not, people are not even aware of their own knowledge so possessed. The German Generals in World War II had mental, strategical, and tactical mobility which often became a battle winning factor, be it Manstein, Guderian or Rommel. The British equivalents namely Montgomery, Wavell never could match or outwit the Germans. Brig Dorman-Smith, BGS Eighth army, was nearest to possess this mobility and flexibility. He was sacked by Churchill in 1942.

Explicit knowledge can be articulated, codified, stored and transmitted through pamphlets, manuals, documents and standard operating procedures. British, Indian and Pakistan armed forces are apt in this art. However, this knowledge is easily predictable, orthodox and is run of the mill stuff. The battlefields were such knowledge is experimented results in heavy casualties and puts greater demand on logistic support. The progress is always slow for obvious reasons. This explains why 1964-65 war and Indo-Pak operations in the western sector during 1971 were so indecisive. There is, therefore, need to prepare ourselves psychologically and acquire greater flexibility and elasticity for battlefield situations. Thus there is a requirement to acquire right knowledge to be made available at the right place to the right people at the right time. It is a multi-disciplined approach for achieving military operations by making the best use of info technology.

4. Theoretical Background:

Although research regarding knowledge management is growing at a fast pace, very little has yet focused exclusively on efforts in the military. More and more anecdotal information about military knowledge management is appearing in the popular press and on-line (e.g., Anthes, Frizzell, @brint.com), but formal research is still lacking. While there may be a variety of reasons for this lack of research, the most significant reason is that the military services are just now beginning their KM efforts in earnest.

The effect of demographic variable on individual attributes has been researched extensively however, the results are indecisive (Ehigie & Otukoya, 2005; Kidder, 2002). In the field of knowledge management, in particular Armed forces, studies that look into the effect of demographic variables are small. As per miller and Karakowsky (2005) found that there are differences between men and women in their effort to seek for knowledge. Irrespective, studies also reported that gender did not have a significant impact on knowledge Management (Chowdhury, 2005 ; Ojha, 2003; Watson & Hewett, 2006). Age as a variable has been studied by Ojha (2003) and reported that it did not affect knowledge Management. However, Collin (2004) reported that among the design engineers, the more experienced employees often act as a mentor to the less experienced employees. In a study by Ijha (2003) found that organizational tenure has no significant impact on knowledge management, but the result is in contrast to the finding of most studies which reported that organizational tenure was a significant and positive predictor of knowledge contribution (Irmer et al., 2002; Watson & Hewett, 2006). Job tenure indicates the length of time an employee has been in certain position. The longer a person is at a certain position, the more comfortable he or she is with the knowledge that he or she posses in relation to that job, and therefore, the more he or she is able to share the knowledge with others. However, where job position is concerned, Ardichvili, Maurer, wentling, and Stuedemann (2006) found that not only the top manager, but the middle- level managers were also not participating in knowledge management efforts. This means job position also did not have an impact on knowledge management. Other than that level of education were also reported not to influence knowledge sharing among the software development engineers (Ojha, 2003) In short, not many studies on knowledge sharing behavior focus on demographic differences. Therefore, the effects of demographic factors on knowledge management are still not conclusive.

5. Objective of the Study:

In general the finding of some studies has implied that certain demographics variables do have an impact on knowledge management implementation. Hence, in this study it was hypothesized that:

H1: Demographics variables (a) age, (b) experience, (c) rank and (d) educational qualification, have significant relationships with knowledge management implementation.

6. Research Methodology:

Extending the framework of Holsapple and Joshi, focus group inputs and secondary data, a questionnaire with 64 dimensions were finalized. The questionnaire was divided in three parts i.e. Managerial dimensions, Resource dimensions and Environment dimensions. Managerial dimension had 29 questions, Resource 26 questions and Environment 10 questions. The questions were coded with prefix for easy identification of the dimensions. The questionnaire was administered to a pilot sample of 320 random personnel from all location. Responses were gathered on a 5-point Likert scale ranging from 5 for 'strongly agree' to 1 for 'strongly disagree'. The Kaiser-Meyer Olkin (KMO) and Bartlett's Test measure of sampling adequacy was used to examine the appropriateness of Factor Analysis. Normally, $0 < KMO < 1$, If $KMO > 0.5$, the sample is adequate. Here, $KMO = 0.865$, indicating that the sample is adequate and we may proceed with the Exploratory Factor Analysis. Shapiro-wilk was conducted, to test if the random sample comes from a normal distribution. As the value of $p > .05$, it can be concluded that with 95% confidence level, that no departure from normality was found and hence the data is normally distributed and fit to carry out EFA. Cronbach's alpha was computed as 0.878 for the questionnaire. Fifty five personnel completed the questionnaire with test and retest with a gap of six weeks and Wilcoxon Non-parametric Statistical Test showed no significant differences between the two tests. This indicates that the questionnaire is consistently reliable. On the first run PCA, When Kaiser's criterion was applied to the questionnaire; six factors were found to have eigen values of more than 1.00 in Managerial influence (M1 to M6), five in Resource influence (R1 to R5) and one in Environmental influence (E1). The details are given below:-

- ✓ KM Leadership (M1)
- ✓ KM Resource and coordination (M2)
- ✓ KM Human resource (M3)
- ✓ KM Technical support (M4)
- ✓ KM Recognition (M5)
- ✓ KM Regulation (M6)
- ✓ Individual (R1)
- ✓ Organisation (R2)
- ✓ KM Methodology (R3)
- ✓ KM Budget (R4)
- ✓ KM System (R5)
- ✓ KM Internal and External factors (E1)

7. Analysis and Summary:

A one way analysis of variance (ANOVA) was carried out to find statistical significant difference of the means between the factors of knowledge management implementation and demographic variables.

Table 1: Result of ANOVA: Knowledge management influence and age

KM Aspects		Mean Scores of Different Age Group				F Value: One Way ANOVA (p Value)	
		35 and Less	35-40	41-45	Above 45		
Managerial	M1	3.7673	3.8128	3.7641	3.5949	1.573	.195
	M2	4.0361	4.0728	4.0633	4.0800	.218	.884
	M3	3.8765	4.0162	3.9811	3.8376	2.308	.076
	M4	3.9392	4.0072	3.9563	4.0195	.949	.417
	M5	4.0585	4.0549	4.1084	3.9730	1.403	.241
	M6	4.1009	4.1301	4.0719	3.9662	1.251	.291
Resource	R1	3.8737	3.9805	3.9461	3.7405	3.639	.013
	R2	4.0250	4.1297	4.0940	3.9989	1.922	.025
	R3	3.9485	4.0211	3.9772	3.8108	2.060	.004
	R4	4.0289	4.1026	3.9815	3.5762	8.324	.000
	R5	3.9978	4.1814	4.0456	3.5932	13.170	.000
Environment	E1	4.0070	4.1220	4.0420	3.8432	4.223	.006

From table 1, it can be concluded that, age have significant association with Resource and Environmental aspects ($p < 0.05$) implying acceptance of hypothesis that with change in age, Resource and Environmental aspects of KM implementation changes. Also highest mean value is associated with age group 35-40 indicates that respondents of this age group are most influenced by Resource and Environmental aspects of KM implementation. It can also concluded that there is no significant association with Managerial aspects ($p > 0.05$) implying non acceptance of hypothesis i.e. Age has no effect on Managerial aspects of KM implementation.

Table 2: Result of ANOVA: Knowledge management influence and Rank

KM Aspects		Mean Scores of Different Rank						F Value; One Way ANOVA (p Value)	
		Havildar	Subedar	Subedar Major	Captain	Major	Lt Colonel		
Managerial	M1	3.7862	3.7265	3.6196	3.8050	3.8133	3.7697	1.072	.375
	M2	4.0948	3.9869	4.0516	4.0092	3.7394	3.9997	2.766	.018
	M3	3.9596	3.8169	3.9530	3.9344	3.9983	3.9883	.657	.656
	M4	3.9878	3.8878	3.9802	3.8931	3.8894	3.9562	.988	.424
	M5	4.0857	3.9706	4.0746	4.1111	3.9444	4.1034	1.129	.344
	M6	4.0829	4.0343	4.0614	4.1181	4.2917	4.1121	.873	.499
Resource	R1	3.9409	3.8706	3.8175	3.9389	3.8111	3.9448	1.121	.348
	R2	4.0870	4.0253	3.9991	4.1758	4.0556	4.0338	.979	.430
	R3	3.9738	3.9922	3.8842	4.0333	3.9111	3.9517	.602	.698
	R4	4.0145	3.9676	3.7656	4.0178	4.2222	4.1031	2.668	.021
	R5	4.0741	3.9998	3.7830	4.0461	3.9256	4.0800	3.371	.005

Environment	E1	4.0284	4.0824	3.9018	4.2111	3.9333	4.1517	2.955	.955
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From table 2, it can be concluded that, rank does not have significant association with KM aspects ($p > 0.05$) implying non acceptance of hypothesis that with change in rank, KM aspects changes except for KM resources and coordination, KM budget and KM systems as the P value is significant for these factors. Also highest mean value is associated with officer rank respondents and is most influenced by KM aspects of implementation.

Table 3: Result of ANOVA: Knowledge management influence and Experience level

KM Aspects		Mean Scores of Different Experience Level		F Value: One Way ANOVA (p Value)	
		Less than 20 yrs	20 yrs or more		
Managerial	M1	3.8025	3.6821	6.030	.014
	M2	4.0842	4.0012	4.059	.044
	M3	3.9799	3.8746	4.253	.040
	M4	3.9839	3.9291	2.225	.136
	M5	4.0875	4.0376	1.726	.190
	M6	4.1227	4.0087	6.860	.009
Resource	R1	3.9347	3.8798	1.793	.181
	R2	4.0934	4.0321	2.354	.126
	R3	3.9814	3.9353	1.156	.283
	R4	4.0659	3.8438	17.776	.000
	R5	4.0953	3.8899	18.920	.000
Environment	E1	4.0674	3.9665	6.231	.013

From table 3, it can be concluded that, years of experience does not have significant association with KM aspects ($p > 0.05$) implying non acceptance of hypothesis that with change in yrs of experience, KM aspects changes except for KM technical support, KM recognition, individual factor, organizational factor and KM methodology as the P value is significant for these factors. Also highest mean value is associated with respondents with less than 20 yrs of service and is most influenced by KM aspects of implementation.

Table 4: Result of ANOVA: Knowledge management influence and Educational Qualification

KM Aspects		Mean Scores of Different Education Qualification				F Value: One Way ANOVA (p Value)	
		10th	10+2/ Diploma	BA/B.Com	B.Tech/B.Sc		
Managerial	M1	3.6999	3.7904	3.8125	4.0000	1.495	.215
	M2	4.0344	4.1090	4.0050	3.0000	3.647	.013
	M3	3.8903	3.9826	3.9668	3.6700	1.108	.345
	M4	3.9281	4.0129	3.9353	4.1400	1.962	.019
	M5	4.0754	4.0580	4.1037	2.7500	3.782	.010
	M6	4.0013	4.1171	4.1585	4.2500	3.357	.019
Resource	R1	3.8942	3.9105	3.9659	4.0000	.679	.565
	R2	4.0086	4.1260	4.0810	3.3300	3.585	.014
	R3	3.9344	3.9899	3.9707	4.2000	.579	.629
	R4	3.9272	3.9971	4.0943	4.6700	2.512	.058
	R5	3.9681	4.0532	4.0837	4.0000	1.476	.220
Environment	E1	3.9651	4.0430	4.1301	4.0000	3.546	.014

From table 4, it can be concluded that, Educational qualification does not have significant association with KM aspects ($p > 0.05$) implying non acceptance of hypothesis that with change in Educational qualification, KM aspects changes except for KM Leadership, KM human resource, individual factor, KM system and KM methodology as the P value is significant for these factors. Also highest mean value is associated with respondents with 10+2/ Diploma or B.Tech/ B.Sc qualification and is most influenced by KM aspects of implementation.

8. Conclusion:

The results bring out that only certain factors in KM implementation affect the demographic variable and are in agreement with various results obtained from other studies. Finding the exact interrelation of influence between the factors using a post adhoc test can be a future scope for research. The results will help in identifying the impact of demographic variables on KM implementation in Indian Army.

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