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An Empirical Investigation on Knowledge Workers Productivity in Telecom Sector of Pakistan

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Abstract: This study intends to investigate the expectations of knowledge workers from their organization. The firms that understand the expectation of their knowledge workers can more effectively satisfy the needs and increase the productivity of their knowledge workers, which ultimately lead to gaining of competitive advantage. Literature does not depict any research study related to knowledge worker productivity that focuses on Pakistani organization. Hypothesized model consists of organizational culture, reward and technology and their effect on knowledge sharing and finally on knowledge worker productivity. Questionnaire was developed based on rigor method of constructs operationalization, including face, content and reliability. The sample size was 210, which was selected randomly from telecom sector. The data is analyzed by structural equation modeling. The results depicts that if the organization focus on organizational culture, reward and technology, it can achieve highest degree of productivity of knowledge workers. Therefore, the organizations must develop a strong strategy for identification and retention of their knowledge workers. In order to increase the knowledge worker productivity, management required to learn the expectation of knowledge worker from them and organization. Study has significant importance for management in strategic planning, human resource management strategy and retention program.

Key Words: *Knowledge Workers (KW), Knowledge Productivity (KWP), Knowledge Sharing, Technology, Organizational Culture*

1. Introduction

Drucker first introduced the term knowledge worker in 1959. Knowledge worker (KW) is the one who works with the information and applies the same knowledge in the workplace (Drucker, 1999). Savage (1999) has divided the wave of socio-economic development into three categories; first is agriculture age in which wealth is defined as ownership of land; second is industrial age, in which wealth is defined as ownership of capital; and the third is knowledge age in which wealth is defined as possession of knowledge and the ability to utilize it for the betterment of product and services. The firms that increase the productivity of their knowledge workers and satisfy their needs become more efficient and gain a competitive advantage. If the knowledge workers are motivated, it in turn influences the likelihood of enduring adoption within the organization. Toffler (1984) has recommended that in the age of knowledge economy there is a need for system to be at the disposal to produce, operate and raise the knowledge of knowledge workers. Similarly, (Drucker, 1999) had predicted that "It is certain that the emergence of the knowledge worker and of the knowledge worker's productivity (KWP) as key questions will, within a very few decades, bring about fundamental changes in the structure and nature of the economic system" (Managing Knowledge Workers (2000, p.1).

Organizations prefer quantitative over qualitative measurement of KWP, which in turns negatively affects the productivity and efficiency of KW. Competitive edge is highly depends on productivity element (Antikainen & Lonnqvist, 2005), for which, organizations must efficiently use and manage their workers knowledge (Drucker, 2008). Most of the organizations are giving strategic importance to manage the knowledge of their employees (Emery, 1997).Wiig (1993) claims that knowledge is not a commodity that can be transferred easily; it is actually the knowledge of a subject that helps in decision making. Knowledge comprises of different understanding, insights, practical know how, that are available to process information and act intelligently (Chen & Huang, 2007). Knowledge management is the smart use of knowhow, and dissimilate that knowledge to make available for everyone (Hendriks, 1999; Scott, 2005). Knowledge asset include both explicit and implicit knowledge that are sometime context dependent, its meaning may vary from firm to firm.

These knowledge assets are the core competency of an organization, as they are evolved over time for gaining competitive advantage (Chen & Huang, 2007). KW are the valuable assets of an organization which should be given importance (Al-Halak, Al-Karaghouli, Ghoneim, & Koufopoulos, 2010), by keeping them highly motivated to create and share their knowledge.

Increasing the KWP is a big challenge for organization in rapidly changing environment across the globe. Although, organization success is highly dependent on KWP, very few empirical studies (Davenport, 2005,Davis, 2003; Drucker, 1999; Scott, 2003) could be found that address the factors, which are necessary for understanding the expectation of KW. Furthermore, literature does not depict any research study related to KW productivity that focuses on Pakistani organization. In order to increase the KWP, management must learn the expectation of KW from their organization. Therefore, this research has two folds objective: (i) to find and measure the expectations of knowledge workers from their organizations and (ii) identify those factors that are affecting the productivity of the knowledge workers. The rest part of the paper has been organized in the following manner: Part 2 describes the literature review; Part 3 explains the research methodology; Part 4 interprets and discusses the results; and discussion, conclusion and recommendations are discussed in Part 5.

2. Literature Review

Knowledge Workers and their Productivity: Traditionally the workers' productivity is measured in terms of quantity, but the scenario for the knowledge workers is very different, as they have to produce quality instead of quantity. Knowledge worker is the intangible resource of an organization and the output received will be of qualitative in nature so we cannot measure the productivity of the knowledge worker in terms of quantity produced in specified time. Knowledge workers have the potential to solve the problem in less time and it will improve their efficiency (Antikainen & Lonnqvist, 2005). Knowledge is used as the main resource for getting competitive edge in the market. If the goal of the firm is to achieve superior performance in the market to get competitive edge then the firm should continuously integrate and manage their knowledge asset into operational activities (Chen & Huang, 2007). The intended use of knowledge and how effectively it has been utilized is of crucial importance. Because the incorrect use of knowledge will not be able to solve the problem or it may give them their adverse results and may leads to wider damage to the society (Zwart-van Rijkom, Leufkens, Busschbach, Broekmans, & Rutten, 2000).

The productitvity of the knowledge worker is always effected by the time constraints (Antikainen & Lonnqvist, 2005) and structure of the organization. Productivity and innovation in companies depend upon the conducive organizational structure because the people behave according to the predefined values of organization (Chen, 2004; Stebbins & Shani, 1995). Antikainen and Lonnqvist (2005) have proposed and devised a tool, knowledge work productivity assessment (KWPA), which helps in understanding the subjective measurement; this was particularly designed for measuring the productivity of knowledge-intensive organizations. KWPA also helped in identifying the possible problems in productivity. KW also seeks to have strong social network. This Personal networks and informal relationship helps in knowledge sharing and improving their competency and productivity. Therefore, especial attention needed to concentrate on the core competency of the worker (Antikainen & Lonnqvist, 2005). So it is the utmost obligation of the organizations to take care of their knowledgable workforce in order to take them advantage otherwise they will lost valuable asset. The knowledge assets helped in getting competeitive edge in the market.

Knowledge sharing: Knowledge is described as a mixture of experiences, principles, and related knowledge. It begins and resides in the "minds of knower", described as tacit knowledge. In organizations it frequently becomes implanted not only in documents, as explicit knowledge but also in "organizational culture, processes, practices and values''. These organizations execute Knowledge Management system, which particularly utilizes explicit knowledge. Such organizations also make noteworthy test as well as bring out knowledge from their work experience (Davenport & Prusak, 2000). Knowledge sharing is basically the sharing of knowledge (Jacobson, 2006), in that knowledge owner transfers his knowledge in different forms like expressions, lecture, or codication in the form of information system. We obsorb knowledge some time in different form like learning by doing, reading books, and understand the codified knowledge present in

knowledge base. There are some hinderances found also like mental difference, culture and language difference and social difference, as forumulated by Hendriks (1999, based on views of Davenport and Prusal (2000): *Transfer (sharing)=Transformation+Absorption).*

Knowledge sharing culture help in enhancing effeciency and effectivess of the knowledge workers ans as well as organization's productivity. The time used to complete the task will alse be reduces (Haas & Hansen, 2007). According to Jacobson (2006) it not only raise the productivity of an individual but it also help the organization to gain sustainable competeitive advantage in market because knowledge workers are the valuable assset of an organization that have the tacit knowledge that they have gained after a life time experience. If the knowledge is not shared with their peer fellows within organization then it will give wider damage to the organization when their knowledgeable worker will exit their organization.

Technology: Organizations are facing different issues like globalization is increasing with high degree and advancement in technology (Zellmer-Bruhn, 2003). Hendriks (1999) endorses that Intranet is one of the tool of Information and Communication Technologies (ICT) that facilitates knowledge sharing. Knowledge owner transfers his knowledge through information system or with the used of technology. With the use of ICT, access of information becomes easy and fast, which resultantly, increased the performance of the task. ICT removes the bariers faced during knowledge sharing and now with the use of these technologies knowledge transformation becomes more fast, accurate and timely. Information and communication are the most important factors in the knowledge sharing and transfer. The dimensions that make ICT more powerful and effective are its usefulness, effectiveness, and technicality (Choy, Lee, Cheung, & Shim, 2005).

Mirza, Talib, & Kamal (2009) admitted that technology can play the role of enabler and catalyst for sharing of knowledge. Knowledge workers extensively rely on and comfortable with modern technologies like email. With the proper use of IT technology they will be able to place their documents (explicit knowledge) on corporate central databases for the benefits of the others. There are three types of barriers usually hinder the knowledge sharing process, which are temporal distance, physical distance and social distance (Hendriks, 1999). ICT is best solution for KW to over some these three barriers and in improves the process of knowledge sharing and ease the task of KW. Similarly, case-based reasoning systems (CBR) helps in finding the solution of the past issues. This is called meta-knowledge, which refers to location and accessibility of relevant information (Hendriks, 1999).

Rewards and Incentives: Effort of the employees shows his desire to work and motivation. When the manager is questioned about the poor performance of the employees, the manager must know the reason behind the problem (Kamal *et al.* 2006). Arocena, and Villanueva (2003) declares that the principal agent model of agency theory explains that when employment contract is to be made, monetary rewards should be given special importance because individual is always motivated by monetary incentives. By decreasing the monetary incentives, the employee's intrinsic motivation will be decreased.

For keeping employees self-motivated, (Sirota, Mischkind, & Meltzer, 2006) have recommended three core principles or goals. These goals are: job security and pay benefits should be given on fair basis; employees should feel proud on achievements; and they should have good relationship with fellow employees. Praising employees on good performance will increase their morale and they will feel that someone is there who cares (Alexy & Leitner, 2008; Chowdhury, 2007; Gagné & Deci, 2005; Sirota, et al., 2006). However, in addition to financial benefits, the interpersonal relationship and fear of punishment also contribute in motivation, which, if not handled properly, may lead to low productivity. Misunderstanding the expectations of employee may make the case more worst, if it is not aligned with individual goals. Li (2006) has identified a link between high performance and desired goals, and argued that if the link is not consistent then motivation problem occurs which in turn creates low performance. Antikainen & Lonnqvist (2005) emphasises that motivation is considered to be an important factor which enhance workers productivity, some workers are motivated by rewards and incentives while some are motivated by their internal satisfaction. It is the duty of management to provide such situation in which motivational level of workers will be increased.

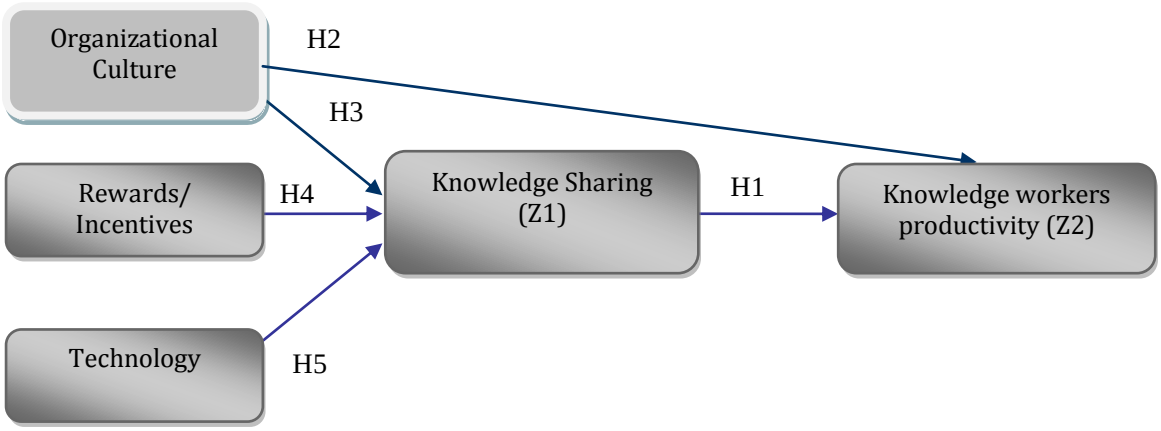
Organizational Culture: Organization culture is considered as the personality of the organization. Organizational culture is the set norms and standards used by the organization and the knowledge workers, worked according to that culture that might be organic or mechanic whereas the knowledge sharing is the culture where the employees were given autonomy, empowerment and there is culture of knowledge sharing within organization. Knowledge workers are aware of that sharing knowledge is of great importance in the organization and they are sufficiently facilitated by knowledge sharing (Denison, 1996; Orr, 1990). The research study of (Chen & Huang, 2007; Scott, 2005) reveals that social interaction develops high degree of coordination and interaction among workers. Making interactions and socialization beneficial need high level of trust among the members. So, there is a need for developing trust in an organization for sharing knowledge. More coordination and communication among knowledge workers is required. Social interaction network should be developed to foster the knowledge sharing culture within organization. Furthermore, extensive flexibility is needed by the business leaders to face unpredictable challenges. For the success of an organization, leadership and personal commitment is required from the decision makers (Chen, 2004). Chen (2004) explored that organizational commitment and job satisfaction varies in different organizational cultures, which depend on different types of culture. Culture has been categorized in different ways.

Wallach (1983) acknowledged the organizational culture in to three typologies: supportive bureaucratic; innovative culture. The bureaucratic culture is hierarchical and responsibilities and authorities are very well defined. Innovative is related with creative, challenging and result oriented working environment. Since, transformational leaders use innovative ideas, encourages innovation, and implement that culture in organizational, they tend to highly focused on organizational commitment. Supportive culture is based on humanistic principles and encourages values that are family oriented like openness, freedom, friendship, harmony, trust, caring of each other and collaboration. Organizational culture that integrate all these values and norms and develop a balanced approach towards knowledge sharing for increasing the productivity will better reap their harvesting. In integration, workers interact with their colleagues and learn from their experiences and can solve the problem in a better way. With the help of good communication and coordination among colleagues knowledge worker share their knowledge with each other and exchange relevant experience to solve particular problem there is a need of social interaction within organization. For implementing social interaction within organization there is a need of less formalized structure within organization (Chen & Huang, 2007; Scott, 2005). Based on literature review, the operation definition of constructs, hypothesized models and the hypotheses are depicted in Table 1, Figure 1 and Table 2, respectively.

Table 1-Operational Definition of Constructs

Construct	Definition
Knowledge worker Productivity (KWP)	The productivity of knowledge worker is measured in terms of quality. If knowledge worker has personal knowledge and good experience about particular problem then the time used to solve the problem will be reduced and it will improve his/her efficiency also (Antikainen & Lonnqvist, 2005)
Knowledge sharing	Knowledge sharing is related to communication and dispersion of information. Knowledge is not a trade good/product that can be easily transferred to everyone that is basically the knowledge of the particular subject (Hendriks, 1999).
Organizational culture	Organizational culture is the values, norms, actions and behavior of an employee towards their colleagues, subordinates, stake holders and vendors (organizational culture, 2009).
Rewards /Incentives	If material rewards, promotion and recognition are given to employees then they will be intrinsically motivated and put on their extra effort on work (Gagne & Deci, 2005).
Technology	It is the practical application of accomplishing a task using technical processes, knowledge and information in specified area (Technology, 2010).

Figure 1: Hypothesized Model



Equation for path analysis:

$$Z1 = \beta\Gamma 11\ Y1 + \beta\Gamma 12\ Y2 + \beta\Gamma 13\ Y3 + E1 \ldots\ldots\ldots\ldots\ldots\ldots\ (1)$$
$$Z2 = \beta\Gamma 21\ Z1 + \beta\Gamma 22\ Y1 + E2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ (2)$$

Table 2: Hypothesis

#	Hypothesis Statement
H1	Knowledge sharing significantly and positively affects knowledge worker's productivity.
H2	Organizational culture significantly and positively affects knowledge worker's productivity.
H3	Organizational culture significantly and positively effects knowledge sharing.
H4	Rewards/incentives significantly and positively effects knowledge sharing
H5	Technology significantly and positively effects knowledge sharing

3. Study Design and Methodology

The research is Quantitative in nature because the questionnaire was utilized to measure the results. The population targeted for the purpose of for the research study was employee of telecom sector having more than 5 years of professional experience in reputed organization. For the purpose of data collection simple convenient sampling was employed. Instrument was developed based on in-depth literature review with major from Antikainen and Lonnqvist (2005). A rigour methods of operationalization of constructs was applied, which includes identification of constructs and their relevant dimensions/elements.

Face, Content Validity and Reliability: For the purpose of face and content validity the preliminary draft of the questionnaire was floated to gather the observations of the scholars and potential respondendents. On the basis of their views, a variety of items were discarded, modified and yet only some of the questions were added up. Contents was validated by four from academic experts, five from expert practitioners and eight from scholars. Following that questioniare was floated for data collection. Data was collected by personal administration and online. By means of web-based questionnaire, only 60 responders have responded in four months period, whereas, 150 were received in return of personally administrated 250 questionnaires. The response rate was 60%. The respondents were both males and females of different ages and belonging to any race, socio-economic status and background. A total of 210 responses were found valid. Reliability test was used to measure the internal consistency based on computed values of Cronbach alpha (α). It was found that all the variables met the cut of value (0.7) (Yu, 2006) which is depicted in Table 3.

Table 3: Reliability Statistics

S No	Variable Name	Cronbach Alpha	No of items
1.	Knowledge workers Productivity	0.751	6
2.	Knowledge Sharing	0.70	7
3.	Technology	0.813	7
4.	Organizational Culture	0.75	11
5.	Rewards	0.716	6

Factor Analysis: The purpose of using factor analysis is to investigate the large number of relationships among inter-level variables. For factor loading principle component analysis method was used. Less than 0.40 of items values were omitted and did not use for further analysis (Leech, Barrett, & Morgan, 2005; Mahmood & Ali, 2011). Item 5 from knowledge workers productivity; item 7 from knowledge sharing; item 6 from the technology; item 2 and item 7 from the organizational culture; item 6 from the reward were removed. The obtained result of factor analysis presented in Table 4.

Table 4: Component Matrix

Variable item	KWP	KS	TECH	OG	TRAIN	REW
1	0.74	0.6	0.79	0.7	0.76	0.73
2	0.7	0.67	0.69	0.29	0.87	0.73
3	0.73	0.71	0.74	0.7	0.84	0.71
4	0.68	0.74	0.78	0.7	0.82	0.79
5	0.39	0.49	0.72	0.23	0.81	0.75
6		0.42	0.36	0.6	0.57	0.38
7		0.3	0.67	0.06		
8				0.7		
9				0.5		
10				0.6		
11				0.7		

Kaiser-Meyer-Olkin Measure of Sampling Adequacy test indicates sufficient items for each factor. All the values are found greater than 0.75 except empathy (0.549). If the value of Bartlett is less than 0.05 then it should be significant and indicates that the correlation matrix is significantly different from an identity matrix (Leech, et al., 2005; Mahmood & Ali, 2011). All the values are meet the KMO and Bartlett's Test of Sphericity cut of value, as depicted in Table 5.

Table 5: KMO and Bartlett's Test

S. No.	Variables	KMO	Bartlett's Test
1.	Knowledge workers productivity	0.72	0.00
2.	Knowledge sharing	0.698	0.00
3.	Organizational culture	0.796	0.00
4.	Technology	0.848	0.00
5.	Rewards/Incentives	0.715	0.00

4. Data Analysis

Descriptive Analysis: Demographic data indicates that 53.6% were male and 46.4% were female. Out of whole sample of the respondents, 4.8% were having Diploma/Higher Graduate diploma level qualification, 27.9% were having Bachelor degree, 44.2% were having Master degree, 21.6% were having M Phil/MS, 0.5% was having PhD and remaining 1% was having other degrees. In the sample, 43.4 % respondents were permanent employees and 56.6% were contractual. All the three types of designation were involved like, 15.9% belong to top management, 60.6% belongs to middle and 23.6% belongs to lower management. Out of the whole sample 50% of the respondents were having 5-7 years' experience; 36.1% having 7-10 years and 13.9% were having above 10 years' experience. Majority of the respondents are in 20-30 age groups with 100

respondents (48.1%). Then come 31-40 age groups (42.3%) and above 45 age groups (9.6%). The distribution of respondents by their departments is as follows: accounting/audit/taxation (11.5%), IT/Software developing (30.3%); sales & marketing/call centre (20.2%), administration and human resource management (12.5 Call centre (7.2%), and rest of the 18.3% belong to different departments. The details are presented in Table 6 (Mahmood & Ali, 2011).

Table 6: Frequency Table

	Frequency	**Percent**
Gender		
Male	114	53.6
Female	96	46.4
Qualification		
Diploma/Higher Graduate diploma level	10	4.8
Bachelor degree	58	27.9
Master degree	92	44.2
M Phil/MS	45	21.6
PhD	1	0.5
Other	2	1
Age		
20 – **30**	100	48.1
30 – 45	88	42.3
above 45	20	9.6
Department		
Accounting/Audit/Taxation	24	11.5
IT/Software developing	63	30.3
Sales & Marketing	42	20.2
Administration/Human Resource/Management	26	12.5
Call centre	15	7.2
Others	38	18.3
Designation		
Strategic /Top	33	15.9
Tactical /Middle	126	60.6
Operational /Lower	49	23.6
Experience		
0 – 5	104	50
6 – 10	75	36.1
above 10	29	13.9
Employment status		
Permanent	49	43.4
Contractual	64	56.6

Correlation: Pearson Correlation was used to check the correlation among the variables. Table 7 shows that all variables are associated with each other and have significant correlations (Leech, et al., 2005; Mahmood & Ali, 2011). The results indicate that rewards are highly correlated with knowledge workers productivity; it means that if worker is given rewards then he will be motivated and his productivity will be increased. If there is a cult, their peer fellows and this will help in saving the knowledge of an organization. Knowledge sharing is also significantly associated with knowledge workers productivity, which shows that by sharing knowledge the productivity of other employees will also be increased.

Table 7: Correlation

Variables	KWP	KS	TECH	OG	REW
Knowledge workers productivity (KWP)	1				
Knowledge sharing (KS)	.414**	1			
Technology (TECH)	.232**	.311**	1		
Organization Culture (OG)	.238**	.523**	.402**	1	
Rewards (REW)	.648**	.183**	.315**	.403**	1

**Correlation is significant at the 0.01 level (2-tailed)

*Correlation is significant at the 0.05 level (2-tailed

Model Testing: Structure Equation Modeling (SEM) was applied to examine the complex relationship of knowledge worker productivity on knowledge sharing and the influence of knowledge sharing on organizational culture, reward and technology, to reduce the relationships to visual representations and to determine the measurement relationships (Usluel, A kar, & Ba 2008). In order to check all hypotheses, the LISREL 8.80 program was used (Jackson, Dezee, Douglas, & Shimeall, 2005; Usluel, et al., 2008).

The results of hypotheses (H1-H5), as depicted in Table 8 indicates that knowledge sharing has significant impact on knowledge workers productivity, t value of t= 8.02, and value of p< 0.05. Therefore the hypothesis H1 is accepted, which means that knowledge sharing have significant and positive impact on knowledge workers productivity. Similarly, organizational culture have a significant impact on knowledge workers productivity, therefore H2 is accepted. The result shows that technology and rewards are significantly associated with knowledge sharing. That's why hypothesis H4 and H5 are also accepted. Lastly, organizational culture is not significantly contributing towards knowledge sharing therefore our first hypothesis is rejected. Table 8 shows the postulated Hypothesis (H1 to H5) and Figure 2 illustrates the significant measurement relationships among the variables.

Table 8: Hypothesis Results

	Hypothesis	B	S.E	t value	Accepted/Rejected
H1	KS-KWP	0.44	0.05	8.02	Accepted
H2	OGCUL-KWP	0.33	0.06	5.57	Accepted
H3	OGCUL-KS	0.08	0.06	1.3	Rejected
H4	REW-KS	0.22	0.05	4.16	Accepted
H5	TECH-KS	0.33	0.05	7.22	Accepted

From the above results it is clear that knowledge sharing has significant impact on knowledge workers productivity, t value of t= 8.02, and value of p< 0.05. Therefore the hypothesis H1 is accepted, which means that knowledge sharing have significant and positive impact on knowledge workers productivity. Similarly, organizational culture have a significant impact on knowledge workers productivity, therefore H2 is accepted. The result shows that technology and rewards are significantly associated with knowledge sharing. That's why our hypothesis H4 and H5 are also accepted. Lastly, organizational culture is not significantly contributing towards knowledge sharing therefore our first hypothesis is rejected. Similarly, Figure 2 illustrates the significant measurement relationships among the variables.

In order to check the model fitness, the test was also run on software. Fit indices that are commonly used in the literature (x^2/d.f, GFI, AGFI, NNFI, CFI, RMSR, RMSEA) (Hoe, 2008; Hooper, Coughlan, & Mullen, 2008; Mahmood & Ali, 2011) were employed to asses model fit. According to Usluel, et al. (2008) the best fit were acquired when all the seven fit indexes meet the cutoff values that were acknowledged in the literature (Mahmood & Ali, 2011; Stephenson, Holbert, & Zimmerman, 2006; Suhr, 2006). The commonly used measures of model fit, based on results from an analysis of the measurement model, are summarized in Table: 9, which also show the seven fit indexes of the model.

Figure 2: Measurement Model

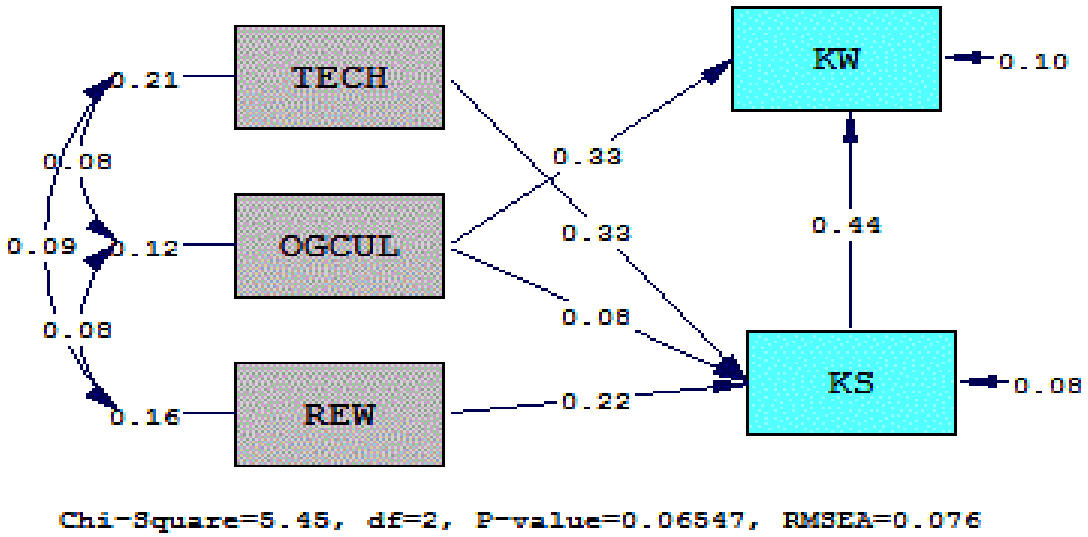


Table 9: Summary statistics of model fit

Fit Index	Recommended Value	Observed values
Chi-square/ degrees of freedom (Usluel, et al., 2008).	≤3.00	< 2.72
GFI - goodness-of-fit index	≥0.90	>0.99
AGFI - adjusted goodness-of-fit index	≥0.80	>0.95
NNFI - non-normed fit index	≥0.90	> 0.98
CFI - comparative fit index	≥0.90 or ≥0.95	>0.99
RMSR - root mean square residual	≤0.10	<0.0036
RMSEA - root mean square error of approximation	≤0.06 or ≤0.08	<0.072

5. Discussion and Implications

In the study, the factors effecting knowledge workers productivity were investigated. Knowledge workers productivity was measured through four variables that were knowledge sharing, organizational culture, rewards and technology. Path analysis and confirmatory factor analysis through structural equation modeling proved that individually every variable affected the knowledge workers productivity. According to H1, knowledge sharing is significantly associated with knowledge worker's productivity that s that knowledge sharing that helps knowledge workers to share their knowledge for the sake of increasing their productivity and efficiency. Similarly, H2, Organizational culture is significantly associated with knowledge worker's productivity that depicts that if organizational culture of the organization is helping their knowledge workers to increase their productivity, then this will increase their efficiency. Hypothesis H3, Organizational culture is significantly associated with knowledge sharing, if the organization has conducive environment of sharing knowledge then it help knowledge workers to share their knowledge freely with others that in turns increase the efficiency and effectiveness of the organization. Whereas, H4, Rewards/incentives are significantly associated with knowledge sharing, rewards also play a crucial role in enhancing the productivity knowledge workers. Lastly, Hypothesis H5, Technology is significantly associated with knowledge sharing, if a knowledge worker is granted an access to require and preferred resources of technology such as computer, internet, library etc, more would their productivity increases.

Study has many implications, like new instrument was developed to measure the productivity of knowledge worker and developed the measuring items to explore and understand the expectations of knowledge workers from their companies. This measurement acknowledges the previous studies (Chen & Huang, 2007;

Hendriks, 1999) that state there is a need to improve knowledge workers productivity. The firms that increase the productivity of their knowledge workers and satisfy their needs become more efficient and gain a competitive advantage. Therefore, the study facilitates in filling the knowledge gap exists in such mentioned areas. So objective of the study is related with the entire hypothesis.

6. Conclusion

The study reports that superb performance can be expected from the knowledge workers through significant changes in organizational culture, technology and knowledge sharing. The findings of the study was in coherence with the immense number of studies, suggesting that knowledge workers productivity is affected by organizational culture, technology and knowledge sharing which leads to worse performance if they are affected negatively. All these imply that positive environment enhances the knowledge workers productivity. The results depicts that irrespective of job nature and task design if the organization keeps control on these independent variables, it can achieve highest degree of knowledge workers productivity. The results indicate that changes in rewards with organizational culture and technology prove to be useful. Also the one of the conclusions that can be drawn is that organizational culture and knowledge sharing may be focused and worked upon that may have contributed towards knowledge workers productivity. Hence, the overall findings complement previous studies (Chen & Huang, 2007; Hendriks, 1999)

Limitations & Future Research Prospects: An important finding is that organizational culture is directly related with knowledge workers productivity. For the upcoming researcher the topic is of great importance so this issue needs to be highlighted and worked upon in future research. Time constraint and cost of surveying were the biggest limitations in conducting the study. Due to less importance of research given by practitioners, data collection was a real challenge for us. However, many practitioners were asking for findings to know the factors that affect knowledge workers productivity. The study was conducted in single country with focus on one sector; it cannot be generalized across the globe and other sector. Furthermore, limited factors tested in the model, whereas other factors like motivation, innovation, and creativity, may also influence the knowledge workers productivity. Therefore, for future study it is recommended to test the model (same or addition of other factors) in different regions and sectors.

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