

Impact of Knowledge Management on Organizational Performance: A Case Study of Selected Universities in Southern Punjab-Pakistan

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Abstract

Knowledge management is an important issue in the business organization. The business firms which is able to manage knowledge will secure competitive advantage and sustainable growth. The objective of this research paper is analyze the impact of knowledge management on organizational performance with respect to selected Universities in Southern Punjab. For this purpose, two Public Universities: Bahauddin Zakariya University Multan and Islamia University of Bahawalpur were selected as a sample of the study. Four variables such as knowledge acquisition, knowledge conversion, knowledge application, and knowledge protection were taken as independent variables while firm performance was taken as dependent variable. Primary data was collected from 200 respondents that include selected Universities' academic and non-academic staff. The response rate was about 90 and 71 percent among academic and non-academic staff respectively. Five estimation techniques such as Likert scale, Correlation technique, Score Card, Ration and Regression Analysis were used to draw the results. A comparison was also carried out to measure the performance of Bahauddin Zakariya University Multan and Islamia University of Bahawalpur. The results were robust and signification, showing close relationship between knowledge management and organizational performance. The comparative analysis shows that Bahauddin Zakariya University Multan has performed well in managing knowledge vis-à-vis Islamia University of Bahawalpur. The Bahauddin Zakariya University Multan is ahead of Islamia University Multan in terms of faculty, class performance, and research work and admission criteria. Though this study is specific to two big public Universities of Southern Punjab, yet its results can be generalized to other Universities of Pakistan as well as of the Universities in other countries.

Keywords: Knowledge creation, knowledge management, knowledge protection, intellectual capital.

1. Introduction

Knowledge Management (KM) is the collection of processes that govern the creation, dissemination, and utilization of knowledge. Knowledge Management is concerned with the entire process of discovery and creation of knowledge, dissemination of knowledge, and the utilization of knowledge. Knowledge Management principles recognize that it is important for organizations to "know what they know". All institutions inherently store, access, and deliver knowledge in some specific manners. Awan et al (2015) say that proper knowledge management improves the performance of the organization whether it is public or private. Awan and kashif (2014) maintain that the Universities are the Centre of innovations which are mostly created through intellectual capital management. Awan and Kaleemullah (2014) emphasized that the retention and proper training of the employees not only improve the skill of employees but build confidence among them. If the employees are involved in knowledge sharing its precipitates their creative power for compels them to be innovative. Awan and Jabbar (2014) maintains that foreign capital flow in any country does not only boost investment activity but also improve the skill and knowledge of recipient country because when a country could not produce innovative products it can import it along with relevant technology. Awan (2012) has explored relationship between human capital and economic growth, saying that human capital is a driving force of all sectors of the economy. He argues that it was human capital which developed Japan and Western Germany after Second World War Therefore, the countries as well as business organization should promote knowledge sharing so that maximum people might learn new methods, new techniques, new tolls, and new technologies. Awan and Tofique (2015) analyzed the role of working environment in knowledge management and knowledge sharing. It is the environment which motivate the managers to share their experience and exchange their ideas. They further pleads that the Universities are the place where knowledge is available but the academicians are reluctant to share it should to lack of traditions. They proposed that the Universities should develop a specific web page and ask their academicians to float their ideas their so that their other colleagues can learn and pass their comments. It will start ideas generation and ideas negation mechanism, which will ultimately produce those ideas which lay

the foundation for innovation and invention.

1.1. Main Research Question

Our main research question is to measure the “Impact of knowledge Management on Organizational Performance: A case study of selected Universities in Southern Punjab-Pakistan”.

1.2 Objective of Study

1. To study the existing state of knowledge management by the selected Universities.
2. To study the impact of knowledge management on the performance of selected universities.
3. To analyze whether knowledge management is a necessary for higher educational institutions for improving their services, academic programs, and innovations.
4. To analyze whether knowledge management is a significant tool to enhance capacity building of higher educational institutions.

1.3 Scope of Study

Knowledge Management is an important business tool being used all over the world to enhance capacity building, improvement business services, developing basic and incremental innovative products and services and improve the skill of workers. Consequently this substantially improve the performance and profitability of business organization whether they are functioning in public or private sector. In this perspective knowledge management is vast application and as such this study is very important because its results may be used by any organization all over the world to improve its working environment as well as performance.

2. Literature Review

2.0 Organizational Performance

Kaplan and Norton (1992) contends that the most popular measurement of knowledge Management is the balanced scorecard, which emphasizes the need to achieve a balance between the use of financial and non-financial measures to achieve strategic objective. The balanced scorecard complements the traditional financial measures with operational measures on three perspectives namely the customers, internal business processes, and the organization’s learning and growth activities. Financial performance is measured in terms of profitability and growth. The growth dimension reflects the performance of business in terms of sales and market share gains while profitability dimension reflects efficiency and performance. These indicators reflect both long-term (growth) and short-term (profitability) characteristics of good performing organization (Ramanujam and Venkatraman, 1988).

2.1. Knowledge Management Process

According to Bounfour (2003) Knowledge management is regarded as collection, distribution, and efficient use of knowledge resources. It is a process of knowledge creation, validation, presentation, distribution, and evaluation. Knowledge management is a set of procedures, infrastructures and technical and managerial tools, designed towards creating, sharing, leveraging information and knowledge within and across organizations. Gold et al. (2001) identified key aspects of knowledge management process that is: (i) knowledge capturing, transfer, and use; acquire, collaborate, integrate, experiment (ii) create, transfer assemble, integrate, and exploit; (iii) create, transfer and use. Examination of these various aspects can be grouped into four broad dimensions of process capability: acquiring knowledge, converting it into useful form, applying or using it and protecting it.

2.2. Knowledge Acquisition

Choo and Bontis (2002) maintain that Knowledge acquisition is improved use of existing knowledge and effectively producing new knowledge through active conversation and externalized and distribute as new knowledge. Some examples of knowledge acquisition include conducting an external survey, acquiring a knowledge, sending employees to external training, hiring an employee, purchasing a data set, monitoring technological advances, purchasing a patented process, and gathering knowledge through competitive intelligence. Knowledge can be captured by six factors: valuing employees attitudes and opinions and encouraging employees to up-skill; having a well-developed financial reporting system; being market focused by actively obtaining customer and industry information; being sensitive to information about changes in the marketplace; employing and retaining a large number of people trained in science, engineering or math; working in partnership with international customers; and getting information from market surveys.

2.3. Knowledge Conversion

Nonaka and Takeuchi (1995) proposed that Knowledge conversion is made possible through the knowledge creation, distribution, and restructuring of knowledge. This process enables a firm to make individual knowledge

useful to the firm by converting individual knowledge into firm knowledge. One of the mechanisms is through the four phases, which are socialization, externalization, combination, and internalization. Some of the processes that enable knowledge conversion are the firm's ability to organize, integrate, combine, structure, coordinate, or distribute knowledge. According to Gold et al. (2001), a primary goal of any organization should be to integrate specialized knowledge of many individuals. Four commonly cited mechanisms for facilitating integration are rules and directives, sequencing, routines, and group problem-solving and decision-making.

2.4. Knowledge Application

Bhatt (2001), state that applying and sharing knowledge means making it "more active and relevant for the organization in creating values". Knowledge that an employee fails to share is of little value to an organization. Knowledge application involves storage, retrieval, application, and sharing. Effective storage and retrieval mechanisms enable a firm to quickly access knowledge. Davenport and Klahr (1998) noted that the effective application of knowledge has helped firms to improve their efficiency and reduce costs. Knowledge application also helps a firm to enhance its business performance by having up-to-date information and knowledge. It is concerned with how to utilize knowledge in order to produce commercial value since knowledge can only be realized when it is applied to solve problems.

2.5 Knowledge protection

Lee and Yang, (2000). Argues that protection of knowledge asset is an essential task in the organization's knowledge management implementation. Security is always the major concern in any organization's management information systems. Protecting corporate knowledge requires clear but detailed policies to ensure the knowledge asset is in its safe state at all times. This would typically include the use of copyright and patents along with information technology systems that allow knowledge to be secured by filename, user name, password and file-sharing protocols that ascribe rights to authorized users. Protecting knowledge from illegal and inappropriate use is essential for a firm to establish and maintain a competitive advantage.

3. Research Methodology

3.1 What is Research Methodology?

Research Methodology is the procedure through which the researchers collect data, tabulate and then analyze it by using different statistical techniques. The research procedures are given and researchers need to master them so that they may be able to manipulate them during course of research.

3.2 Sample of the study

We selected Bahauddin Zakariya University Multan and Islamia University of Bahawalpur as a sample of higher educational institutions. Both these Universities are located in Southern Punjab and are in Public Sector. Both were founded in the same year, 1975. In order to study their knowledge management mechanism we take sample of 200 employees. Academic and non-academic staff is included into this sample. The academic staff include both permanent and visiting teachers having academic qualification from Master level to Ph.D. levels. Non-academic staff include permanent employees of two Universities working in 17 and above grade and having qualification of Master Degree in their relevant fields.

3.3. Nature of Study

This study is both qualitative and quantitative because both methods were used. Qualitative research design was used for this study because it offers naturalistic inquiry. Quantitative research was applied to collect primary data from the sampling population through a structured questionnaire. Qualitative method was used to highlight the characteristics of selected Universities while comparing their performance while quantitative method was used to record the views of sampling population about the methods of knowledge creation, knowledge sharing and knowledge dissemination and measuring its impact on the performance of these Universities.

3.4 Data Collection Method

Primary data was collected through a structured questionnaire. The sample size was 200. A total of 150 questionnaires were distributed among academic staff. However, nine academic staff does not return and six questionnaires had incomplete information which rendered them unusable. The response rate was 90 percent. On the other hand, a total of 50 questionnaires were given to the non-academic staff. However, five non-academic staff does not return and two questionnaires had incomplete information which rendered them unusable. The response rate was around 71.42 percent. Secondary data was collected from the following sources:-

- University Journals.
- Higher Education of Pakistan database.
- Economic Survey of Pakistan, University prospectuses.

- Universities' official record.

3.5 Study Period

Our study period is five years starting from 2008 and ending to 2012. We have studied that how much our sampling Universities have produced research papers, M.Phil and Ph.Ds students and what types of knowledge they have created and what techniques they have used for knowledge management and knowledge application among academia, administration, and operational process.

3.6 Selected Variables

We have selected five variables, one is dependent variable, and other four are independent variables, for this study and these variables are stated below:-

- Firm performance----- dependent variable
- Knowledge acquisition-----independent variable
- Knowledge conversion-----independent variable
- Knowledge application----- -independent variable
- Knowledge protection-----independent variable

4. Econometric Model

We use an econometric model to measure the impact of four independent variables on one dependent variable. The model is shown in the following equation:-

$$y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where; Y= Firm performance, α =constant, $\beta_1, \beta_2, \beta_3, \beta_4$ = parameter estimates, X_1 = Knowledge acquisition, X_2 = Knowledge conversion, X_3 =knowledge application, X_4 = Knowledge protection, ε is the error of term

4.1 Estimation Techniques

We used six methods to estimate the behavior and change in the selected variables. These estimation techniques are given below:-

- Likert Scale/Descriptive Analysis.
- Regression Analysis.
- Ratio Analysis.
- Score Card Analysis.
- Correlation Analysis.

4.2 Measurement of Variables

Measurement of Variables knowledge acquisition was measured using 11 items adapted from Gold et al (2001) using five point Likert scale varying 1 "strongly disagree to" 5 strongly agree, Knowledge conversion was measured using 7 items under five point Likert scale adapted from Gold et al (2001) and Knowledge application was measured using 12 items under-fives point Likert scale adapted from Gold et al (2001), Knowledge protection was measured using 10 items under-fives point Likert scale, while firm performance was measured using 6 items adapted.

4.3 Descriptive statistics

The researcher sought to arrive at average mean of the variables; Knowledge protection, knowledge acquisition, knowledge application, knowledge conversion, and firm performance by getting the average mean of the variable items of each respondents and getting the average mean of all the respondents.

Table 1 Variable constructions

	Mean	Std. Deviation	Skewness	Kurtosis
• Knowledge acquisition	4.0431	0.32055	0.242	1.648
• Knowledge conversion	3.9421	0.30729	0.303	-0.69
• Knowledge application	4.3904	0.31001	-0.738	0.201
• Knowledge protection	4.0406	0.42942	-0.437	0.186
• Organization culture	4.3659	0.49213	-1.081	1.109
• Firm performance	4.4218	0.41053	-1.232	2.548

Interpretation scale is: 1- 1.49 = Strongly Disagree 1.5-2.49 = Disagree 2.5 -3.49 = slightly Disagree 3.5-4.49= Neutral 4.5 - 5.49 = slightly Agree 5.5- 6.49 = Agree 6.5 - Strongly Agree.

4.4 Correlation Results

Pearson Product-Moment Correlation (r) was used to test the hypothesis. The results were summarized and presented in table 5.3 .Pearson Correlation results in table 5.3 showed that knowledge protection is positively related with firm performance with a Pearson Correlation coefficient of $r = .636$ which is significant at $p < 0.01$. The output also shows that knowledge application is positively related with firm performance, with a coefficient of $r = .599$ which is also significant at $p < 0.01$. Also, the correlation results indicated that knowledge conversion is positively related with firm performance as shown by a coefficient of $r = .599$ which is significant at $p < 0.01$. Finally, knowledge acquisition exhibited positive relationship with firm performance as indicated by a coefficient of $r = .580$ which is significant at $p < 0.01$. From the foregoing, there is a linear relationship between knowledge protection, knowledge acquisition, knowledge application and knowledge conversion with performance.

Table 2 Correlation Results

Firm Performance	Knowledge Acquisition	Knowledge Conversion	Knowledge Application	Knowledge Protection	
• Firm performance	1				
• Knowledge acquisition	.580**	1			
• Knowledge conversion	.599**	.454**	1		
• Knowledge application	.599**	.505**	.426**	1	
• Knowledge protection	.636**	.477**	.614**	.532**	1

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

Table 3 Regression Results

	Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
• (Constant)	0.042	0.337	0.125	0.900			
• knowledge acquisition	0.254	0.079	0.227	3.218	0.002	0.658	1.520
• knowledge conversion	0.256	0.081	0.236	3.163	0.002	0.586	1.707
• knowledge application	0.294	0.084	0.251	3.487	0.001	0.632	1.583
• knowledge protection	0.253	0.08	0.25	3.149	0.002	0.520	1.923
• R Square	0.582						
• Adjusted R Square	0.569						
• Durbin-Watson	1.602						
• F	44.526						
• Sig.	.000						

A Dependent Variable: firm performance

5. Interpretation of Results

• Hypothesis 1

The results of multiple regressions, as presented in table 5.4 revealed that knowledge acquisition has a positive and significant effect on firm performance with a beta value of $\beta_1 = 0.227$ (p -value = 0.002 which is less than $\alpha = 0.05$). Therefore, the researcher rejects the null hypothesis and it is accepted that for each unit increase in knowledge acquisition, there is 0.227unit increase in firm performance.

• Hypothesis 2

The results of table 5.4 showed that the standardized coefficient beta and p value of knowledge conversion was positive and significant ($\beta = 0.236$, $p < 0.05$). Thus, the researcher rejects the null hypothesis and it is accepted that, knowledge conversion has a positive and significant effect on firm performance. In line with the findings, knowledge conversion makes it possible for firms to organize knowledge that has been created or acquired and applying it in many other ways that allow the knowledge to become accessible (Davenport and Klahr, 1998; O'Dell and Grayson, 1998a).

• Hypothesis 3

As shown in table 5.4, p -value is significant ($p < 0.05$), and the beta value of knowledge application was positive ($\beta = 0.251$). Therefore, the researcher rejects the null hypothesis and concludes that knowledge application

has a positive and significant effect on firm performance. Reid (2003) assertion that knowledge application creates an avenue for opportunities to maximize organization ability to generate solutions and to have a competitive advantage. Further, knowledge utilization transforms acquired knowledge into a dynamic capability that impacts organizational performance (Seleim and Khalil, 2007; Zahra and George, 2002).

• **Hypothesis 4**

Table 5.4 further shows that knowledge protection has a positive and significant effect on firm performance with a beta value of $\beta_4 = 0.250$ (p-value = 0.002 which is less than $\alpha = 0.05$). Therefore, the researcher rejects the null hypothesis and it is accepted that for each unit increase in knowledge protection, there is 0.250 unit increase in firm performance. Consistent with the results, the use of copyrights and patents together with information technology systems that secures knowledge through password and file sharing protocols enhances the effective functioning and control within organizations (Lee and Yang, 2000).

6.1 Comparison of Knowledge Management and Performance of Islamia University of Bahawalpur and Bahauddin Zakariya University, Multan.

We used ratio analysis to compare the Knowledge Management and performance of Islamia University of Bahawalpur and Bahauddin Zakariya University, Multan through different 12 indicators. We analyzed ratio of per permanent teachers ratio of students per visiting teacher, ratio of Ph.D. to total number of Faculty, ratio of admission to total admission to previous year, ratio of students per computer, Library books per student, Ratio of PERN kb to per computer, ratio of students per laboratory, Ratio of research paper to Research Scholar, Ratio of M.Phil students output to total number of students, Ratio of Ph.D. output to total students. This comparison shows that BZU is ahead of IUB in ratio of student to per permanent teacher, in percentage of Ph.D. Faculty to total number of faculty, number of students' admission, Library books, PERN kb to per computer, students per Lab and ratio of M.Phil, and Ph.D. students. In contrast, IUB is ahead of BZU in the ratio of visiting teachers and ratio of admission to total number of applications. It means that Bahauddin Zakariya University Multan is managing knowledge in a better way and as such its indicators are more positive than that of IUB. (See Table 4 for detail).

Table 4 Indicators of Knowledge Management & Performance of BZU and IUB, 2008-2012.

Knowledge Management / Performance Ratios Summaries	The Islamia University of Bahawalpur	Bahauddin Zakariya University, Multan
	Mean	Mean
Student per Permanent Teacher*	26	28
Student per Visiting Teacher*	28	17
Percentage of Ph.D. faculty to total faculty*	23.5%	33.5%
Ratio of Admission to Applications*	62.1%	45.1%
Increase in No. of Admission to Previous year.*	13055	14639
Student per Computer**	5	5
Library Books per Student**	16	17
PERN kb Per Computer**	6.946	7.806
Students per Lab**	93	98
Research Paper to Research Scholar***	1	1
Ratio of M. Phil output to total students***	0.51%	1%
Ratio of Ph.D. output to total students***	0.11%	0.12%

6.2 Scoring card Results

The result of scorecard are shown in the Table 5 in which a comparison of the score of both universities are given. Every variable total score is 5 and every university derives its score in relation to selected variable out of it. The author has constructed data in the following scorecard.

Table 5 Scorecard of Knowledge Management and performance of BZU and IUB

	IUB			BZU				
	8-9	9-10	10-11	11-12	8-9	9-10	10-11	11-12
KA	0	0	1	1	5	5	4	4
KC	0	0	0	0	4	4	4	4
KA	4	0	1	0	1	5	4	5
KP	4	0	2	1	10	14	12	13
UP	0	0	1	0	4	4	3	4

KA= Knowledge Acquisition, KC= Knowledge Conversion, KA = Knowledge Application, KP = Knowledge Protection, UP= University Performance.

This scoring card shows the scores of Knowledge acquisition, knowledge conversion, knowledge application and knowledge protection were improved by the both universities and consequently their performance was also improve. However, these scores show relatively higher scores of the BZU as compared to the IUB.

The Table 5 shows that the total score of IUB for knowledge acquisition was 4, 0, 2, and 1 out of 14, while for the BZU these scores were 10, 14, 12, and 13 in the years 2008-2012. These scores show the higher scores of the BZU vis-a-vis IUB. This table also highlight the research performance of two universities in term of No. of papers published by their, X, Y, Z category Journals, total M Phil students output and Total Ph.D. student output. These indicators of research performance gained the scores of 0, 0, 1 and 0 for IUB out of 5 and for BZU the scores are 4, 4, 3 and 4 out of 5 during study period- 2008-2012.

7. Findings and Discussions

As per data collected 95 percent of academic members and 75 percent of non-academic staff were well aware about the Knowledge Management and its importance in educational institutions. They had views that the Universities could enhanced their curriculum review process by improving the quality of curriculums and academic programs by identifying and leveraging best practices and monitoring mechanism. They maintained that knowledge management could improve speed of curriculum revision and research activities, besides improving the knowledge level of faculty. 95 percent of academicians contended that knowledge management mechanism could speed up curriculum revision process.

Some senior members of non-academic employees said that knowledge management mechanism could improve administrative services relating to teaching and learning with technology, improve responsiveness by monitoring and incorporating experiences learned from their senior colleagues and students' evaluations. About 84.5 percent of non-academic staff was of the view that knowledge management could improve services being provided to teachers, students, and lower employees. It could also expedite overall decision making process resulting in the improvement in overall productivity of the Universities. 96 percent of academic and non-academic employees of these universities supported the use of information technology in all departments of to enhance efficiency and productivity of employees.

8. Conclusions

We draw the following conclusions:-

- ▶ Each higher educational institution (HEI) is unique in its scope, size, and priorities, and is a complex institution that balances both providing superior education and research opportunities, while simultaneously operating as an efficient and effective business in a competitive market. The level of efficiency in Islamia University of Bahawalpur is less than the level of efficiency of Bahauddin Zakariya University Multan.
- ▶ The process of knowledge sharing is also slow and coordination and cooperation among the academicians is lacked in Islamia University of Bahawalpur. The Administration of this University should enhance technology tools and train academic and non-academic staff how to use technology to improve their productivity.
- ▶ The motivation level among the academic as well as non-academic staff was found low because of lack of fiscal incentives and rewards. Similarly, the academicians and research students are not provided financial assistance and technical support to conduct research in a conducive environment.
- ▶ Knowledge Management is very much an important need for the Universities because they are assumed to be the center of knowledge creation, knowledge dissemination, and knowledge sharing. The availability of required funds is one of the main problems of these two Universities.
- ▶ These Universities are behind from other Pakistani Universities located in Islamabad, Karachi and Lahore because they receive very less grants from the Federal and Provincial Government to complete their buildings, hiring faculty at attractive wages and completing their research projects.

9. Recommendations

1. Islamia University of Bahawalpur has been facing shortage of permanent faculty and it is depending more on visiting faculty. It should be given more fiscal incentives to attract quality faculty to meet this challenge.
2. Islamia University should induct more Ph.D faculty to improve its performance in teaching and research.
3. Bahauddin Zakariya University Multan should rationalize its admission criteria because about 55 percent of the students, who used to apply for admission, could not get admission due to strict criteria, low number of seats and students assessment methods.
4. Islamia University of Bahawalpur's performance in M.Phil students' production is very poor vis-à-vis Bahauddin Zakariya University Multan because only 49 percent of students who are admitted in different disciplines of M.Phil, could not get relevant Degree. The University Administration should investigate into the causes of so much high dropout ratio of the students.
5. University of Bahawalpur is located in remote area and as such students should be provided financial incentives to study there and standard of teaching should be improved besides improving required accommodation and infrastructure facilities.

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