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Analyzing the Impact of Technology-Based Work Environment on Employee Morale: An Assessment between Public and Private Sector Enterprises in Pakistan

MARYUM SIDDIQUI
Iqra University/Business Administration Department, Karachi, Pakistan.
Email: maryum.siddiqui@gmail.com

MUHAMMAD ZULQARNAIN SIDDIQUI
Iqra University/Computer Science Department, Karachi, Pakistan.
Email: zulqarnain@iqra.edu.pk

ATIA ELAHI
Iqra University/Business Administration Department, Karachi, Pakistan.
Email: atia.elahi@iqra.edu.pk

KAMRAN KHAN
Iqra University/Computer Science Department, Karachi, Pakistan.
Email: kamrankhan@iqra.edu.pk

Abstract

In today's modern world, particularly in developing countries, organizations depend on technology to enhance operational efficiency and attain sustainable growth in the fiercely competitive market. However, the successful integration of technology into existing practices and garnering employee support presents a prominent managerial challenge. To recognize substantial improvements in work processes, technology implementation must be accompanied by employee satisfaction. The COVID-19 pandemic underscored the vital role of technology across various sectors, compelling employees to adapt to technological solutions. As businesses return to physical operations, technology continues to play a pivotal role. This research investigates the connection between technology-based work environments and employee morale, utilizing a descriptive research methodology that spans a diverse population from both the public and private sectors. The findings of this study reveal a significant positive relationship between technology-based work environments and employee morale.

Keywords: *Information Technology, Work Environment, Employee Well-Being, Job Satisfaction, Motivation, Performance and Innovation.*

Introduction

Technology was introduced within the work systems to improve the quality of work. It was considered to be a revamping agent for the whole system but required an understanding of management processes, the nature of organizational communication, organizational structure, and employee attitude, interdepartmental and interpersonal relationships (Olson and Lucas, 1982). Productivity enhancement was the biggest concern for organizations and they knew that computerization could bring productivity gains if well integrated with the operations of each department (Gagnon and Dragon, 1996). On implementation, the perceptions about technology went wrong as employees started feeling dissatisfied with the mechanistic work life (Wright et al., 1997). Then organizations started realizing that for technology to be successful they require the support of human resources, organizational culture, and proper strategic planning (Powell

and Micallef, 1997). Then came the concept of performance-based bonuses and promotions (Hitt and Brynjolfsson, 1997). Training of first-line managers was considered important for implementing IT strategies and tactics (Bassellier et al., 2000). Information Technology is now being used as a means of gaining competitive advantage all over the world. Implementing IT practices and viewing organizational performance is not enough, informing employees about its advantages, preparing them for adapting it, knowing their perception about it, and viewing the changes in their performance level is also very important (Bruce, 2000). Organizations decided to link technology with sociology and psychology to generate desired employee behavior (Venkatesh et al., 2003). Technical efficiency is the basis for technological progress, overall productivity and exposure to foreign technology help to improve the efficiency of the firms (Ray, 2006). The compensation practices for the industries using high technology should be different from the other industries because technological innovation makes the job challenging for employees and hence, they should be remunerated accordingly (Yanadori and Marler, 2006). It has been seen that public sector organizations are the effective consumers of IT. If a firm grows in size it has to increase the use of IT so that it can manage the change effectively. The benefits of computerization can be enjoyed only when a firm identifies how information and data availabilities can interact with existing organizational practices (Garicano and Heaton, 2008).

Most of the research has emphasized the importance of technology and integrated systems to survive in this highly competitive environment and agrees that technology affects the performance of an organization and employee's attitude, behavior, efficiency, and satisfaction either positively or negatively (Ahakwa et al., 2021; Tasman et. al., 2021).

To satisfy varied customer demands, accelerate the growth process, and manage change effectively organizations need to develop a technology-based environment that could boost the morale of employees by enabling them to match up with the pace of the changing environment. Currently, many industries in Pakistan still need to upgrade themselves and there is a need to bring public and private sectors at par with each other. Employee behavior needs to be observed and shared value has to be created for technology adaptation as to how it is beneficial for both the employer and employee. The effect of a technology-based environment has to be viewed separately on the morale of public and private sector employees so that different strategies can be formulated for motivating employees from both sectors.

This research aims to examine the integration of technology within work environments and assess the impact of technology-driven settings on the morale of employees in both public and private sector organizations.

Data and Methodology

The research type selected for this topic is causal-comparative research to observe the cause-and-effect relationship between technology-based work environments and employee morale. Here technology-based work environment is considered as the cause and its effect is being observed on the morale of public and private sector employees. Furthermore, a technology-based work environment does not affect employee morale is considered for the null hypothesis. It relates to a workplace that consists of basic computer-related facilities such as software, internet, intranet, and automated machines that enable the free flow of information, make it easier to communicate, provide data storage facilities, and help people connect around the world. Moreover, employee morale is considered a state of emotions that comprises a set of characteristics such as job satisfaction, efficiency at work, creativity at work, motivation at work, and employee behavior (Kalra et al. 2020).

Primary data for this research has been collected using a questionnaire comprising closed-ended questions devised to collect quantitative data having a 5-point Likert Scale (Suprapti et al., 2020). Cluster Sampling based on probability is used to select respondents from the targeted population for the reason that every

industry in Pakistan does not have both public and private sector institutions working in it. Therefore, three prominent industries have been selected that have a contrast of both public and private sector companies. As there are several universities, hospitals, and banks running in Pakistan it was impossible to consider all of them as samples for this research. Therefore, a simple two-stage cluster sample has been considered by taking up to 12 organizations from each industry, and then a simple random sampling technique is used to select individuals for the research from each selected organization. Figure 1 has been developed keeping in view the industries catered to in this research.

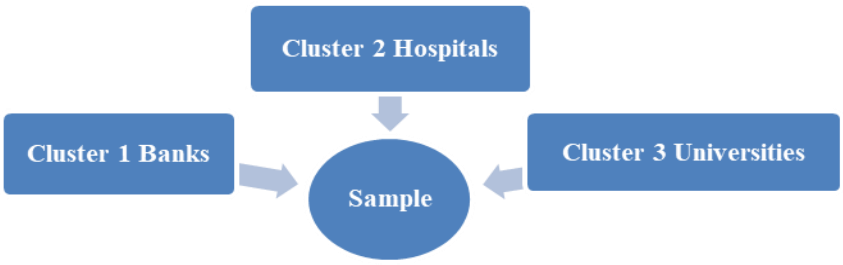

Figure 1: Cluster sampling of enterprises considered during the study

We have assessed 250 employees from the overall population of specified industries for the survey to examine the impact of a technology-based environment on their morale. The sample size has been fixed, on average 15 individuals from each organization have been surveyed. The selection of individuals has been done in such a way that the data is equally distributed between the public and private sector enterprises. This approach has been undertaken to avoid partiality (Basalamah and As'ad, 2021).

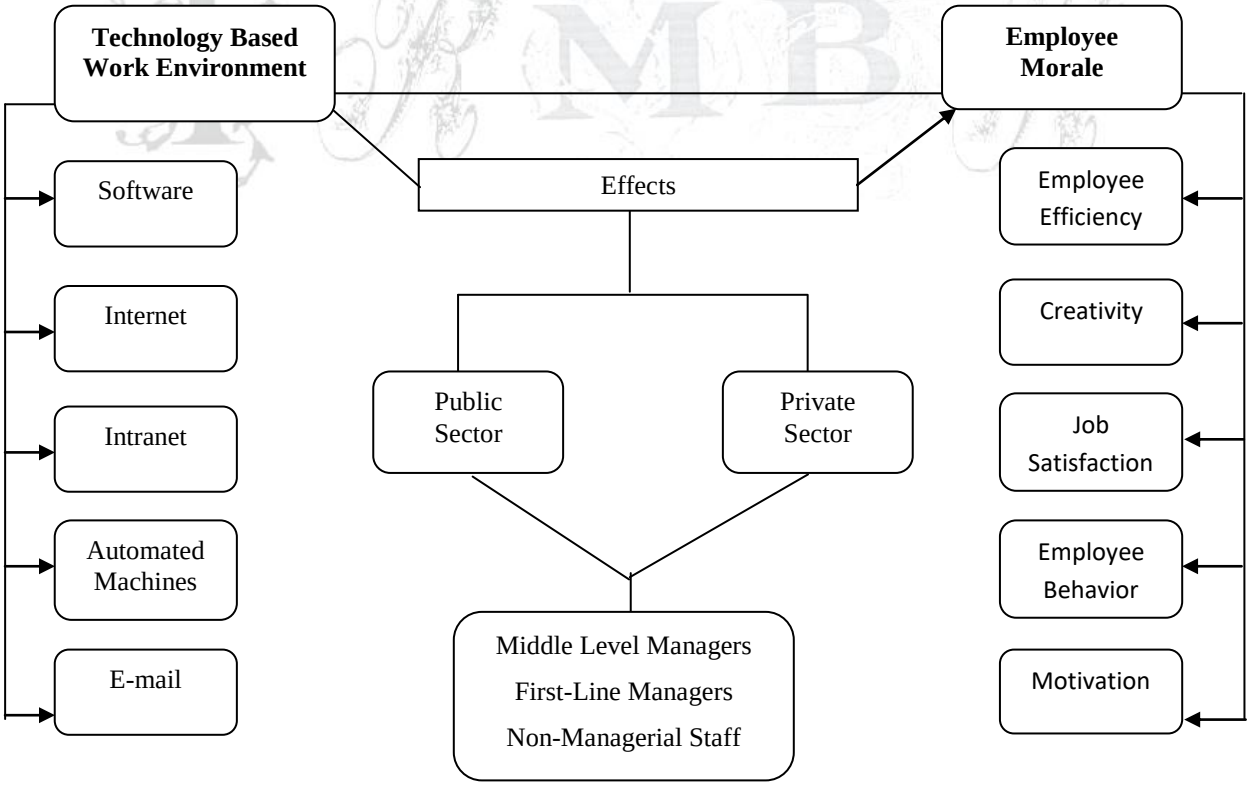

Figure 2: Developed research model for specific respondents

Figure 2 represents the important factors of a technology-based environment and employee morale along with the specification of respondents. As employee morale cannot be directly measured it has been explained with the help of certain attributes that can be used to assess it. Similarly, a technology-based work environment has been limited to characteristics that are necessary for creating such an environment.

The accurate measurement of the success of any new initiative taken by an organization can be viewed by observing its effect on the lower and middle-level staff who are the actual doers and who experience its effects on a larger scale (Pachori and Singh, 2020), for this reason for specifically middle and lower level staff of all the surveyed organizations have been targeted.

Additionally, we have implied regression analysis to identify the strength of the relationship between technology-based work environments and employee morale. Compressing the responses of all statements in the questionnaire related to independent and dependent variables a mean value is calculated, therefore one independent and one dependent value is extracted from each respondent.

The model developed for a technology-based work environment is as follows:

$$\textbf{Employee morale} = \beta_1 \text{ (Technology based environment)} + \beta_0$$

Furthermore, to check whether there is a difference in the morale of public and private sector employees and to verify the difference between the technologies-based environment of public and private sector enterprises we implied independent samples t-test.

Results and Discussion

Table 1: Comparison of Public and Private Sector Banks

Public Banks

Coefficient[1]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.654	0.409		6.488	0.000
TECHNOLOGY BASED ENVIRONMENT	0.356	0.100	0.393	3.571	0.001

1. Dependent Variable: EMPLOYEE MORALE

Private Banks

Coefficient[1]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.293	0.441		2.934	0.004
TECHNOLOGY BASED ENVIRONMENT	0.631	0.108	0.548	5.830	0.000

1. Dependent Variable: EMPLOYEE MORALE

Employee Morale = 0.356 (Technology based environment) + 2.654

According to the above equation, a 1 unit change in the technology-based work environment of public sector banks will bring a 0.356 unit change in employee morale. The p-value for the beta coefficient for a technology-based environment is 0.001 which shows a significant relationship between a technology-based environment and employee morale.

The OLS equation for predicting the morale of private-sector bank employees is as follows:

Employee Morale = 0.631* (Technology based environment) + 1.293

The above equation shows that a 1 unit change in a technology-based work environment brings a 0.631 unit change in employee morale. Whereas the p-value of 0.000 for a technology-based environment proves that employee morale is positively affected by a technology-based environment. Comparatively, the effect of a technology-based environment on employee morale is seen more in private-sector banks.

Table 2: Comparison of Public and Private Sector Hospitals

Public Hospitals

Coefficients[1]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	0.956	0.595		1.607	0.125
TECHNOLOGY BASED ENVIRONMENT	0.661	0.161	0.696	4.118	0.001

1. Dependent Variable: EMPLOYEE MORALE

Private Hospitals

Coefficients[1]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-0.087	0.590		-0.147	0.885
TECHNOLOGY BASED ENVIRONMENT	1.018	0.147	0.865	6.902	0.000

1. Dependent Variable: EMPLOYEE MORALE

Employee Morale = 0.661*(Technology based environment) + 0.956

This equation shows that a 1 unit change in the technology-based work environment of public sector hospitals brings a 0.661 unit change in employee morale.

Whereas the OLS equation for predicting the morale of private-sector hospital employees is:

Employee Morale = 1.018 *(Technology based environment) - 0.087

The equations show that a 1 unit change in the technology-based work environment of private sector hospitals brings 1.018 unit changes in the morale of its employees.

The p-values for both sectors prove an alternative hypothesis to be true and if compared technology-based environment has a higher positive impact on employees of private sector hospitals.

Table 3: Comparison of Public and Private Sector Universities

Public Universities

Coefficients[1]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	0.322	0.512		0.629	0.533
	TECHNOLOGY BASED ENVIRONMENT	0.901	0.117	0.786	7.722	0.000

1. Dependent Variable: EMPLOYEE MORALE

Private Universities

Coefficients[1]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	2.143	0.463		4.633	0.000
	TECHNOLOGY BASED ENVIRONMENT	0.369	0.120	0.502	3.068	0.005

1. Dependent Variable: EMPLOYEE MORALE

This equation explains that a 1 unit change in the technology-based work environment of public sector universities brings a 0.901 unit change in employee morale.

Similarly, the OLS equation for predicting the morale of private-sector university employees is:

Employee Morale = 0.369 *(Technology based environment) + 2.143

The above equation explains that a 1 unit change in the technology-based work environment of private sector universities brings a 0.369 unit change in employee morale. The p-values of the technology-based environment for both sectors show a significant relationship between the independent and dependent variable but here technology-based environment has a higher impact on the morale of public sector university employees.

Table 4: Comparison of Public and Private Sector Organizations

PUBLIC SECTOR ORGANIZATIONS

Coefficients[1]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.382	0.289		4.786	0.000
	TECHNOLOGY BASED ENVIRONMENT	0.648	0.070	0.633	9.279	0.000

1. Dependent Variable: EMPLOYEE MORALE

PRIVATE SECTOR ORGANIZATIONS

Coefficients[1]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.284	0.306		4.197	0.000
	TECHNOLOGY BASED ENVIRONMENT	0.630	0.076	0.591	8.267	0.000

1. Dependent Variable: EMPLOYEE MORALE

If compared 1 unit change in a technology-based environment brings a greater amount of change in the morale of employees belonging to public sector organizations and the p-values for the beta coefficient of technology are significant for organizations of both sectors.

Table 5: Regression Analysis Overall

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.282	0.211		6.089	0.000
TECHNOLOGY BASED ENVIRONMENT	0.652	0.052	0.618	12.622	0.000

Note: Dependent Variable: EMPLOYEE MORALE

The OLS equation for predicting the morale of employees from both public and private sector organizations collaboratively is as follows:

Employee Morale = 0.652 *(Technology based environment) + 1.282

The above equation explains that 1 unit change in a technology-based environment brings 0.652 unit change in the morale of employees regardless of what sector their organization belongs to. The p-values for the beta coefficient of a technology-based environment for both sectors combined prove the alternative hypothesis to be true that a technology-based environment has a positive effect on employee morale.

Table 6: Independent Samples t-test

		Levene's Test for Equality of Variances		**t-test for Equality of Means**						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
TBE	Equal variances assumed	2.269	0.133	1.374	258	0.171	0.108	0.078	-0.046	0.263
	Equal variances not assumed			1.376	253.488	0.170	0.108	0.078	-0.046	0.262
EMP	Equal variances assumed	0.095	0.758	2.945	258	0.004	0.241	0.081	0.080	0.402
	Equal variances not assumed			2.948	255.677	0.003	0.241	0.081	0.080	0.402

Levene's test for equality of variances assumes that there is no significant difference in the variances of different groups. On conducting the test the significance value identified for the technology-based environment is above 0.05 therefore we accept the null hypothesis and can state that there is no significant difference in the variances of both public and private sector organizations. Both sectors have a similar technology-based environment.

Table 7: Hypothesis Assessment Summary

Hypothesis	Significance value	Empirical conclusion
H_1 (Alternative Hypothesis)	0.000	Accept

Based on the p-value extracted from the regression coefficient table for overall organizations we fail to accept the null hypothesis therefore the alternative hypothesis is proved to be true that a technology-based work environment has a positive impact on employee morale.

Technology gaps had earlier created barriers in the growth of public sector organizations but later on government linked the promotion of employees with IT training and this research proves the success of these trainings as employees of public sector organizations are now taking technology seriously and understanding its importance. The government has invested huge amounts to train employees of public sector organizations to make them computer literate.

Whereas in private sector organizations, employers expect employees to be computer literate from the time they join the organization. Therefore, the focus is not on training employees in basic computational skills but on training them for new software and newly introduced applications. Every employee does not possess the same skill sets and does not have the same level of proficiency in technology-related skills therefore employees who lack basic skills feel dissatisfied their morale goes down.

Assessment of training needs should be done carefully to ensure that all employees possess the same level of technological expertise.

Conclusion

The findings suggest that public sector organizations emphasize more technology-based environments rather than private sector organizations and the effect of technology on employee morale is seen more in private sector organizations.

Industry-wise analysis shows that public sector universities are more inclined towards technology and represent a stronger association between a technology-based environment and employee morale, whereas in hospitals and banks private sector shows a stronger relationship between independent and dependent variables. On combining all the results, it can be said that the perception of employees about technology is not varied concerning public and private sectors of industry and they understand its importance.

Research indicates that a Technology-based work environment has a positive impact on employee morale but it is not one of the major variables that bring a shift in employee morale. It has proved to be a moderate indicator of a shift in employee morale, to experience a greater impact more variables need to be considered such as leadership style, organization, and level of autonomy being given to employees.

Future research can be conducted by considering more factors along with technology-based environments that affect employee morale. Data was collected from three industries, future research can focus on more industries so that conclusions can be extracted from a larger population.

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