

A Factor analysis approach to antecedents of Technostress: A Study of State Bank of Patiala

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Abstract

Banking sector is rapidly adopting technology in every function to cope up with the increasing competition among the foreign, domestic and private players. The paper discusses the stress factors created due to the usage of technology in banks. The results are based on both primary and secondary mode of research study. It covers the employees working in the branches of State Bank of Patiala in Punjab. The study is based on 7 point Likert scale derived from the past literature. The objective of the present study is to understand the technological antecedents which induce stress among employees of State Bank of Patiala. One hundred respondents were interviewed through questionnaire from various branches of State Bank of Patiala in Punjab. The demographic characteristics of the respondents show that majority of respondents were in the age group of 30 to 40 and 55% of them were males and the rest of them were females. The method of factor analysis has been used for grouping and summarization of factors creating technostress. The factors identified through the factor analysis are: work overload, job insecurity, pace of change and invasion of privacy. This study finds that technology is leading to increased workloads and never ending urgency of work has affected the work-life balance immensely.

Keywords: Antecedents of technostress, bank employees, technology in banks, factor analysis, technological change.

Introduction

Occupational stress is increasingly affecting the employees in organizations and it affects them in numerous ways. Hence, Steers (1981) considers occupational stress as an essential area for research. The reasons that he discovered for this are physical and mental problems among employees, increase in turnover rate and absenteeism. Stress has harmful psychological and physiological effects on the affected employees as well as on other employees. New technology introduction has added to the stress levels of bank employees as explained in the present study. Keeping pace with the fast changing technology at workplace is one of the eleven occupational stressors in banks (Russek and Zohman, 1958 and Caplan, 1972). Margolis et al. (1974) also support that changing technology is the cause of stress among employees.

In today's organizations, virtual teams (connected through technology) are bringing about constant changes in the organizations. Traditional organizations relied on brick and mortar structure but today's banks are facing immense challenges to use modern work environments which are entirely based on technology. There is an enormous pressure on organizations to work in non-traditional environments. Due to globalization, uncertainty in work conditions has increased in the organizations, which leads to constant pressure on

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employees. These changes are also giving rise to fast and ever changing styles of management which are continuously adding to the stress levels of employees. Technology advancement is another cause of stress as not only knowledge and skills are required to properly implement it but it also requires extra effort to use it at the same time.

The era of technology and its mass usage has shrunk the globe and easy access to any part of world has further contributed to increased levels of stress among employees. Technology has its own advantages and disadvantages. No doubt, technology has increased the speed of the work related activities, but it has also increased the rate of mistakes which are irreparable in nature as compared to the manual work. This constant pressure of committing a mistake is taking a toll on the mental health of the employees.

Review of Literature

Globalisation and technology revolution in service sectors like banks has its own advantages and disadvantages. These changes brought about the strategies like downsizing and upsizing of organizations which resulted into job insecurity amongst employees (Burke and Nelson, 1998). The changes prevalent in banks environment cannot be prevented and hence the fast changing technological changes are putting pressure on employees to enhance expertise and for high performance.

According to a study by Kumar (2006), the sudden changes in the work environment of banks has taken toll on health, family life and many other aspects of 60% of bank employees. This effect on employees is also due to the trend of contracting labour and offering VRS.

Another study explains that the flexibility in work structure and long hours of work would lead to increased levels of stress and fear of uncertainty. These negative effects can be avoided by planning the implementation of technological changes properly. The aspects of implementation of computer systems and its effects on stress levels of employees are important but the most ignored part on different occupational levels (Huuhtanen et al., 1997).

Other difficulties related to e-banking on employees like layouts, less socialization and mechanical society will create many health and psychological hazards (Black et al., 2001). Another aspect discussed in various studies related to technology usage is increase in workload. It is true that technology can decrease the monotonous or repetitive jobs, but according to most of the employees working in foreign banks are facing heavily stressed environment and have high work load. One of the employees working in Citibank has experienced that before the computer usage in the banks they required to do 30-40 cash entries, but now the figure is more than its double. So, no doubt workload and sense of responsibility has increased. Increase in insecurity in the workplace, and loss of union power is another point of importance. Technological advancement has increased the feeling of insecurity amongst the employees because beforehand training was not provided to the employees but computerization was introduced in each and every department. This strategy infused fear of losing jobs due to redundancy. According to a study of Citi Bank, the temporary reductions made them insecure further. Because of contracting out of some jobs, unions also became powerless and were not able to protect employees from policies like VRS (Gothoskar, 1999). It is also explained that private banks are having higher workloads due to technology revolution, manpower reduction etc.

Many studies discuss that job insecurity is also prevalent amongst employees due to changing work profiles of employees which has shifted from operational and labourers to professional and technical staff. It is suggested that if acceptance of technology has to be increased, then the employees and unions should be taken into confidence beforehand only. This could be achieved by providing the proper communication of information, education and relevant training programmes (Datta, 1990 and Datta, 1996).

According to a study of Taiwanese banks, the type of skill sets, creativity and behavioural factors amongst the employees that are required in banks are changing marginally nowadays. The age factor is playing a major role in selection process as senior employees are facing problems in adopting new technological changes; hence they are prone to stress due to fear of job uncertainty. The introduction of ATMs and other e-banking tools in banking industry have made many jobs redundant (Lee, 2010). Multi-skilling is preferable for technological process revolution.

As we have discussed earlier also that changing technology has its own pros and cons. According to some studies, it is also evident that employees feel that computerization decreases the workload and others believe that it is making their work interesting. Productivity increase is an advantage, but on the other hand, team work is diminishing. Customer interaction has mechanized and problem of fast pace transactions are present nowadays (Gothoskar, 1999). Another example has been put forward that successful transformation of Bank of Baroda from Public bank to modernized bank has been achieved by involving communication of employees in technology adoption (Khandelwal, 2007).

The lack of freedom, autonomy and job satisfaction at work leads to the stress levels among employees. It decides the acceptance of technology readily by the employees (Gurtoo & Tripathy 2000, Venkatachalam & Velayudhan 1999).

According to primary data collected in Bangalore, it came out in the findings that 60% of bank employees were not trained properly before implementation of information technology. Due to lack of knowledge, employees resisted technology change and 20% of employees faced difficulties because of this resistance whereas other 20% employees faced no difficulties (Paramashivaiah & Kumar, 2007).

A lot of studies are based on the assumption that technology adoption is given more importance in comparison to the human aspect in banks. Lack of employee participation in IT adoption leads to lack of job satisfaction and failure in change programs (Malhotra, 2000). This notion is also strengthened by another study by explaining that implementation of technology involves employees. Therefore, technology is far less important than people of any organization (Harris, 1997). It is further added that as per a study it was observed that bank employees are satisfied with the e-banking with some problems in its operations (Uppal, 2006). It was concluded in a study, that the technological changes are not the reason of employee resistance and stress. The cause behind this is the after effects of these changes.

Objectives and Methodology of the study

The objective of the present study is to understand the technological antecedents which induce stress among employees of State Bank of Patiala. State Bank of Patiala was chosen for the study as it is the first public sector bank where the technological changes were introduced and tested initially. The Bank added a golden chapter to its history by fully computerising all its branches on 24th January 2003 and became the first fully computerised Public Sector Bank in the country. The Bank has maintained its leadership in technology and it has become the first Public Sector Bank in the country to network all its branches on 5th Aug. 2005. Therefore, in this paper it is tried to explore the stress created amongst employees due to the exposure to fast changing technology in State Bank of Patiala.

A convenience sampling method was used for collecting the sample from various branches of State Bank of Patiala situated in Punjab (Patiala, Ludhiana & Jalandhar). 120 bank employees were interviewed through questionnaire from various branches of State Bank of Patiala in Punjab (Patiala, Ludhiana & Jalandhar). Bank employees comprise of front line managers (executives, POs, cashiers, accountants etc.) and middle level managers (Training managers, Branch managers etc.). Among the sample of 120 employees; 70 front line

mangers and 50 middle level managers were taken for the study. The number of front line managers (executives, POs, cashiers, accountants etc.) taken in the study is large in comparison to the middle level (Training Managers, Branch Managers etc.) because the nature of their job profile is such that it leads to greater exposure to technology as compared to the latter case.

This paper attempts to identify the technology created factors which cause technostress. For this purpose, various studies have been reviewed and survey has been taken up. Hence, this study is both primary and secondary in nature. The studies have been taken from various journals, magazines, books and online resources. The statements chosen for the questionnaire were based on the studies developed by Moore (2000), Kreiner (2006), Eddy.et.al (1999) etc. These scales are well tested and validated.

The questionnaire consists of details regarding personal information and the statements regarding technology created factors and stress based on past studies. Seven point Likert scales were used for ascertaining the relationship between technology created factors and stress.

Analysis and Interpretation

Technostress is caused by various factors detected on the basis of review of literature done from past studies. Technological factors were identified by selecting some statements and survey was conducted through questionnaire which may lead to technostress on basis of past research work.

On the basis of earlier studies, 21 statements are taken in the questionnaire for analyzing the relationship of factors on technostress. For the purpose of data reduction and grouping the statements on the basis of various technological factors; factor analysis was used for the interpretation. The reliability of factor analysis method was tested by using Cronbach's alpha method in which the alpha came out as 0.746, which is significant.

Then, the Kaiser-Meyer Olkin (KMO) and Bartlett test was implemented for measuring the adequacy and usefulness of the sample used in the study. The KMO measure of sampling adequacy came out to be 0.765 which is adequate for the study as per Table 1 which is as follows:

Table: 1

Kaiser-Meyer-Olkin measure of sampling adequacy	0.765	
Bartlett's Test of Sphericity	Chi Square value	482.210
	df	210
	Significance	.000

Bartlett's value is significant with Chi-Square value of 482.210 and also supports validity of factor analysis of the data. The correlation between the variables under each factor is significantly strong that is evident from the calculated chi-square value.

Principal component factor analysis was used and varimax rotation was used for extracting the factors. Varimax rotation method was used for rotating matrix. Factors which score eigen value of more than one are selected for the analysis and statements have loading

factor less than 0.45 are suppressed. Twenty one statements are used for the analysis and grouped under four factors. The first factor comprises of four statements which has the eigen value of 4.046 and loading factor ranges from 0.573 to 0.828. The cumulative percentage of variance is 19.12 as depicted in Table 2.

The statements given in Table 2 describe that technology has created more requests for the bank employees; it is time consuming, feeling of pressure, has made them busy and increased the amount of work. Therefore, the factor is named as work overload.

Table 2
Factor 1: Work Overload

Sr. No.	Statements Included in the factor	Loadings	Eigen Value	Cumulative % of variance
1.	Technology creates many more requests problems in my job than I would otherwise experience	0.573	4.046	19.12
2.	I feel that time required to use technology interferes with fulfilling my work responsibilities	0.630		
3.	I feel busy or rushed due to technology	0.809		
4.	I feel pressured due to technology	0.828		

Table 3
Factor 2: Job Insecurity

Sr. No.	Statements Included in factors	Loadings	Eigen Value	Cumulative % of variance
1.	I am under pressure to keep my technology skills up-to-date to keep my job	0.745	4.27	16.250
2.	Technology will advance to an extent where my present job can be performed by a less skilled individual	0.885		
3.	I am worried that new technology may pose a threat to my job	0.624		
4.	I believe new technologies are in development that will affect how I would perform my job.	0.670		
5.	I believe that technology makes it easier for other people to perform my work activities.	0.564		
6.	My inability to keep up with constant changes in technology will make me less valuable for my job.	0.680		

The statements taken in grouped in Table 3 under the factor name job insecurity explains the feeling of employees to continuously update their skill set as bank employees feel that technology is posing threat for their jobs. They believe that the technology is in

phase of development and creates uncertainty, threat of taking over the job by some skilled person. The loading values ranges from 0.564 to 0.885. The cumulative % of variance in this case is 16.250 with eigen value of 4.27.

The statements given in Table 4 reveal the feeling of employees regarding the pace of technological change. They depict the technology characteristics like frequent changes in technological features, characteristics of technology, capabilities of technology, changes in looks of technology and the way technology works. The percentage of variance is 2.023 and eigen value is calculated as 7.589. The factor loadings are ranged from 0.582 to 0.734.

Table 4
Factor 3: Pace of change

Sr. No.	Statements Included in the factor	Loadings	Eigen Value	Cumulative % of variance
1.	I feel that there are frequent changes in the features of technology	0.658	2.023	7.589
2.	I feel that characteristics of technology changes frequently	0.660		
3.	I feel that the capabilities of technology change often	0.582		
4.	I feel that there are frequent changes in how technology looks	0.590		
5.	I feel that the way technology work changes often	0.734		

Table 5
Factor 4: Invasion in Privacy

Sr. No.	Statements Included in factors	Loadings	Eigen Value	Cumulative % of variance
1.	I feel uncomfortable that my use of technology can be easily monitored.	0.783	5.016	11.054
2.	I feel my privacy can be compromised because my activities using technology can be traced.	0.745		
3.	I feel my employer could violate my privacy by tracking my activities using technology.	0.703		
4.	I feel that my use of technology makes it easier for my employer to monitor me.	0.689		
5.	I believe my organization can keep a digital leash on my technology-related activities.	0.696		
6.	I feel that my use of technology makes it easier to invade my privacy.	0.720		

The factor indicated in Table 5 is named as invasion in privacy. These statements comprise of beliefs of bank employees regarding technology being a threat to their privacy. These statements describe the feeling of discomfort due to easy monitoring, tracking of activities, continuous monitoring by employer, keeping a digital leash on technology related activities and invasion of employee's privacy. The cumulative % of variance and eigen value experienced is 5.016 and 11.054 respectively. Loading factor ranges from 0.689 to 0.783 and shows correlation between the statements.

Implication for Banks and Conclusion

This study emphasizes upon the technostress created by the factors like work overload, job insecurity, pace of change and invasion of privacy. These factors taken into account would contribute towards the human aspects of technological changes alongwith the financial and strategic implications of these changes. The factors identified in the study are tabulated as under.

Table 6
Relevant Stressors identified in the study

Sr. No.	Stressors	Explanation
1.	Work overload	It is perceived that the person is not capable or do not have the skill level as per the work allotted.
2.	Job Insecurity	Feeling of uncertainty or threat to job
3.	Pace of Change	The skill set gets obsolete due to fast paced change.
4.	Invasion in Privacy	Violation of privacy due to constant monitoring and tracing of activities.

The present study clearly draws the conclusion that technological factors are affecting the levels of technostress in bank employees. The factors like work overload shows the importance of paying attention towards time consumption, strain that has been created by technology implementation. The factors like job security and pace of technological change also play an important role in understanding the threats and insecurity posed by the fast paced technological change. It is also concluded that invasion in privacy is also an important factor to study technostress amongst bank employees. The employees of State Bank of Patiala were found to be stressed due to increased dependency on technology or increased technology usage which leads to creation of technological stressors.

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