Is Technology Stressful? (A Study of Indian Public Sector Banks)

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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 public sector banks. The results are based on both primary and secondary mode of research study. It covers the employees working in the branches of public sector banks 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 public sector banks. Three hundred fifty respondents were interviewed through questionnaire from various public sector banks in Punjab. The demographic characteristics of the respondents show that majority of respondents were in the age group of 30 to 40 and 80% 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: role ambiguity, usefulness, complexity, reliability of technology, and work-home conflict.

Keywords
Technostress, Bank Employees, Technological Changes, Factor Analysis, Banking Industry

I. Introduction

Technology invasion is widespread in banking industry and it is prevalent in each and every function of the banks. Technology has become an inseparable part of banking transactions.

Technology is significant in attaining competitive advantage and customer satisfaction which are two main factors to retain in the industry (Thornton and White, 2001). In banks, dial-up connections, personal computers, tele-banking, online credit card, electronic fund transfer, online payment of taxes and automated teller machines (ATMs) are readily used in the day to day functions of banks. Transactions, electronic payment of bills, investment, loans, bank statements etc. are some of the applications of technology innovations. The banking industry has expanded a lot and to support this expansion, changes in technology are irresistible.

Information technology has invaded both personal and organizational space in the lives of people. As the technology is changing with the blink of eye, it also attracts the attention of the behaviorists. The high-end technology also brings along with it the issues related to adoption and its acceptance among bank employees (Ayyagari, 2007). The present usage of technology also leads to the interest towards anxiety, stress and work-life balance among bank employees. Technology advancements has not only added to the stress levels among bank employees but also provided with some new opportunities to the organizations. It is important to mention here that the manufacturing and service industry were the first to adopt technological advancements. Very basic technology was used earlier in the form of telex machines, telephones, typewriters, fax machines etc. In the present study, we will discuss the modern technology trends in banking sector and its impact on the stress created by its usage.

Banking industry is totally transformed in recent times and the force behind this transformation is technology revolution. This revolution has compelled each and every organization to adopt the new technology to stand the grueling competition. Technology is creating convenience for customers and employees, reduction in operation costs and introducing better risk management. But the implementation of technology should be done very carefully because it is a double edged sword which can play havoc if not handled properly. To facilitate this, banks should create integration of technology with functioning of banks. In this integration process, human resource is the most ignored aspect i.e. internal customers or employees are the sole bearers.

For adopting and adjusting to the fast changing technological changes, employees require being multilingual, well versed with different cultures and policies, procedures of international levels. These demands put enormous pressure on employees which results into overload of work, multi-tasking, multi-skilling and extended working hours. Information technology has become like the lifeline of organizations and also necessity of every individual. So, it is turning out to be a necessary evil which cannot be avoided but it should be properly implemented so that it does not become a foe for the employees.

II. Review of Literature

Widespread technology introduction has increased the importance of technostress and due to this it needs to be studied extensively. The study undertaken by Tu et al. (2005) is amongst the few studies that provide an empirical conceptualization of technostress by developing a second order model for technostress with five dimensions of technostress. These are techno-overload, techno-invasion, techno-uncertainty, techno-complexity, and techno-insecurity. This may be taken as one way of conceptualization of technostress, but this study is having many limitations. Firstly, the technostress causing factors are not taken into consideration. Secondly, limitation identified from this work is the non-clarity in the coverage and relationship between the technology characteristics and stressors or antecedents of technostress (like work overload). For example, the dimension of techno-overload emphasizes that by the usage of technology; there is greater workload on the employees. Whereas with this inference; it was not clarified that what are those technological characteristics which leads to work overload. Therefore, this research study proposes the relationship between technology characteristics and presents a detailed picture of technology characteristics and its antecedents.

It was further discussed in a study that work and home life are both related terms and are affected by each other. In old times, the creation of balance on personal and professional front was the sole responsibility of women (Okebaram, Moses, 2013). But increasing work pressures, globalization and technological advancement have made it an issue with both the With time, it has become an issue for both the genders as there is considerable number of increase

in women workforce due to advancements like globalization. This change has taken place at each and every organization and for all levels of employees. The electronic gadgets has also decreased the difference between work and life as it has connected everybody by the help of email, messages, mobile phones without any complication of time and location which were earlier only considered to be used for work. This invasion also made it possible for professionals to work from any corner of the world at any time. The 24*7 availability of employees with the means of electronic devices has no doubt benefitted in many ways but it has also left no time for family and recreational activities. This impacts the physical and mental growth of employees as technology has made it possible for organisations to extract unlimited work from their employees. The hobbies and personal interests have taken a back seat in the lives of individuals. This unlimited access is very much visible in sectors like BPO industry, doctors and nurses in health care industry, IT industry, banking industry etc. who are working for long hours and in technology driven environment. This has negatively affected the professionals from these industries and face burnout. Earlier due to fewer invasions of technological devices in the lives of employees; work hours were limited in number. But, nowadays differentiation of work from life has become impossible. Globalisation has dissolved the boundaries between different countries and the maintenance of businesses across the borders has made it a compulsion to adopt 24*7 work culture. The technological methods of connecting were earlier considered beneficial for simplifying work as it allows connecting with the workplace at any time with the help of text messages, mobile phones, emails etc. But these have diminished the boundaries between work and home completely.

Another study explored the Taiwanese banks (Joseph .S. Lee, 2010) in which the fast changing technologies are putting pressure on the employees to learn new skills, creativity and the behavioural factors. The senior employees feel more difficulty in adopting the technological changes as compared to the younger employees. This is because of usage of the same old work processes used by the senior employees for many years. So, banks are now shifting to a new recruitment strategy i.e to hire younger employees who are well versed with new technology advancements. This can prove to be a stressful condition for the senior employees working in banking sector. Its cause is further discussed that the old employees who are used to the old ways would feel difficult to adopt the fast pace changes. The introduction of ATMs and other e-banking tools in banking industry have made many jobs redundant. Some jobs have actually disappeared from the banking scenario whereas some new skills like knowledge of management information systems, computer programming has taken its place. The skills which were thought to be necessary for doing job in the banks are not required.

As discussed earlier, it was reviewed in a study that technological changes are introduced by the organisations to stand out in the competitive environment (Tarafdar et al, 2007). This is no doubt decreases operational cost as technology facilitates the programs like business process re-engineering. But this change is introduced without involving the employees who have to implement it. This also alters the role of staff working in organisations which initiates the problem of technostress. Many researchers like (Murray & Rostis, 2007; Moore, 2000 and Sethi & Barrier, 1999) also examined that the technology can create burnout and makes employees ineffective because of no interpersonal interaction.

Further some factors like characteristics of job, role, organizational factors, career concerns, relationships within organisations were identified from the related studies carried out on antecedents of technostress (Cooper & Marshall, 1979). Invasion of privacy, workload, work-home conflict and job insecurity are also the important factors causing job stress differentiated from these studies. The above stressors portray the imbalance of abilities and demands of organisations. Many factors contributing to job stress have been identified by various researchers. It was further proposed in related study that IT based organisations create work overload for employees (Moore, 2000). Some similar studies also supported the fact that technology makes the employees prone to stressful conditions.

It was also explained in a study that the pace of technological changes has increased the need to acquire latest skill sets to perform according to the latest technological changes (Benamati (2001); Gallivan (2004). This pressure of continuously sharpening the skills and to perform efficiently according to the unlimited technological advancements is creating pressure and insecurity amongst the employees. The increasing demands of superiors also put pressure on employees as it is difficult for a subordinate to refuse the orders of superiors. The demographical variables like age are also a cause of stress amongst employees because with the age the personal and professional responsibilities increase immensely. This pressure of performance in any circumstance is putting employees in highly stressful conditions.

III. Objectives and Methodology used for data collection

On the basis of factors identified from the review of various studies based on technology antecedents of technostress like work overload, pace of change, role ambiguity, usefulness of technology, reliability, complexity, work-home conflict etc. are studied based on factor analysis. The convenience sampling method was used for data collection in the present study from various public sector banks situated in Punjab. The respondents chosen for this study are the bank employees who utilize technology in their day-to-day office work. The employees chosen for the data collection comprised front line managers (Executives, POs, Cashiers, Accountants etc.) and middle level managers (Training Managers, Branch Managers etc.). The survey of 400 employees was done and out of the total questionnaires 350 were found to be complete. Amongst these 250 employees were from front line management category and 100 were from middle level management. The employees consisted of 80% males and 20% females. Most of the bank employees consisted of post-graduates and graduates and belonged to the age category of 30-40.

The well validated and tested scales for data collection were chosen based on the studies done by Moore (2000) and Rizzo et al. (1970), Moore and Benbasat (1991), Delone and McLean (1992; 2003); Jiang et al. (2002) and Kreiner (2006); Netemeyer et al. (1996) as per the review of past studies. 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 Table 1 synopsize the demographic profile of respondent:

Table 1: Demographic Profile of Respondents

Demographic Variable	Frequency	Percentage
GENDER		
Male	280	80
Female	70	20
Total	350	100
AGE		
20-30	25	7.14
30-40	225	64.29
40-50	50	14.28
Above 50	50	14.28
Total	350	100.0
EDUCATION ATTAINED		
Matriculation	18	5.0
Higher Secondary	45	12.8
Graduation	130	37.2
Post-Graduation	157	45.0
Total	350	100.0
DESIGNATION		
Executives	100	28.60
PO	50	14.28
Cashier	50	14.28
Accountants	50	14.28
Training Manager	50	14.28
Branch Manager	50	14.28
Total	350	100.00

IV. Data Analysis and Interpretation

As per the exploratory method to analyse the various factors affected were studied and the antecedents which actually affected the technostress amongst employees were identified. Amongst all, five factors came out with most of factor loadings more than 0.70 and which indicate satisfactory validity.

Table 2: Reliability, Mean, Standard Deviation and Factor Loadings of the Factors

Factors	Statements	Reliability	Mean	Standard Deviation	Factor Loadings
1. Role Ambiguity	• Technology cause constant interruptions, creating uncertainty in my work activities.	0.7250	4.20	0.485	0.776
	• I am unsure whether I have to deal with technology related problems or with my work activities.				0.825
	• I am unsure what to prioritize: dealing with technology problems or my work activities.				0.748
	• I cannot allocate time properly for my work activities because my time spent on technology related activities varies.				0.670
	• Time spent resolving technology related problems takes time away from fulfilling my work responsibilities.				0.766
2. Usefulness	• Use of technology enables me to accomplish tasks more quickly.	0.9328	5.60	1.302	0.762
	• Use of technology improves the quality of my work.				0.682
	• Use of technology makes it easier to do my job.				0.782
	• Use of technology enhances my effectiveness on the job.				0.798

3. Complexity	• Learning to use technology is easy for me. • Technology is easy to use. • It is easy to get results that I desire from technology.	0.8234	4.82	0.954	0.869 0.741 0.704
4. Reliability	• The features provided by technology are dependable. • Technology is free from breakdowns. • The capabilities provided by technology are reliable. • Technology behaves in a highly consistent way.	0.7989	3.85	0.684	0.612 0.762 0.670 0.780
5. Work-home Conflict	• Using technology blurs boundaries between my job and my home life. • Using technology for work-related responsibilities creates conflicts with my home responsibilities. • I do not get everything done at home because I find myself completing job-related work due to technology. • I am not able to fulfill my family roles because I am doing technology enabled-work activities from home.	0.8042	3.04	0.742	0.776 0.806 0.745 0.824

The five factor extracted from the below analysis are role ambiguity, usefulness, complexity, reliability of technology and work-home conflict. Role ambiguity is one of the role characteristics which produce uncertainty. The other factors identified are usefulness, reliability and complexity which can be named as technology characteristics. The statements included in the factors are also depicted in Table 2. The table shown on the next page also presents the results of the factor loadings, reliability, standard deviation and mean values extracted from data analysis:

As per above table, role ambiguity factor comprise of non-clarity of the roles to be fulfilled while working with technology. The factor loadings under this factor ranges from 0.670 to 0.825. The other three significant factors derived from analysis are related to technology characteristics which affect technostress. Amongst these, factor loadings for usefulness ranges from 0.682 to 0.798. The factor loadings for complexity of technology ranged from 0.704 to 0.869. The other factor related to technology characteristics is its reliability and factor loadings for this are ranged from 0.612 to 0.780. The high mean value of factors like reliability, complexity and usefulness (technology characteristics) denote as a major technostress causing constituent.

In the table no.3, the results of Pearson Correlation Analysis are portrayed which was conducted to establish correlation with demographic variables with above identified technostress antecedents and technostress:

Table 3: Pearson Correlation Analysis

Variables	Gender	Age	Education	Technology characteristics	Role ambiguity	Work-home conflict	Technostress
Gender							
Age	-0.089						
Education	-0.068	-0.039					
Technology characteristics	0.35	0.044	0.101				
Role ambiguity	-0.236**	-0.091	0.113	0.160**			
Work-home conflict	-0.093	0.119	0.032	0.262**	-0.170**		
Technostress	-0.090	0.124*	0.030	0.223**	-0.168**	-0.169**	

*p < .05 p** <.01

As per the above valuations, technostress has significant negative correlation with role ambiguity(r=-0.170, p<.05) and work-home conflict. Technostress has a significant positive correlation between technology characteristics(r= 0.233, p <.01). The demographic variables like age has significant positive relationship with age of the respondents(r=0.124). On the other side gender and education doesn't express any significant correlation with technostress.

V. Discussion and findings of the study

The factors identified which are perceived to be the major technostress causing factors are role ambiguity, technology characteristics (usefulness, complexity & reliability) and work-home conflict in public sector banks. These findings are in order with previous

studies carried out in which (Sagie and Aycan, 2003) it has been established that the uncertainty of technology in banking sector has created imbalance in work life of employees. This also changed the behaviours of individuals and groups in organizations. This study also supports the fact supported by many previous studies that private sector employees suffer from high level of stress as compared to public sector banks due to role ambiguity. Further, lack of technology characteristics like usefulness, complexity and reliability also proved to be major cause of technostress as per this study (Ayyagari, 2007).

Another findings of this study expresses that there is significant relationship between the age and technostress which support many past studies which emphasize that adults face more technostress as compared to the young ones (Hogan, 2009). Some other studies also describe that the older employees are less technostressed than their younger counterparts. Whereas, some other also establish that there is no clear relationship between these two components. Otherwise, gender didn't portray any significant relationship with technostress in contrast with the past studies which explain that males are more stressed by technology as compared to females (Tarafdar,Tu, Ragu Nathan,T and Ragunathan, B, 2011) because males are frequent users of technology whereas women used it when only is required. The level of education does not render any direct relationship with technostress. Like all research studies, this study also has some limitations, one of them being biased opinions of the employees regarding technostress and may not be based on actual experiences. As the technology advancements is a burning issue in every service industry, therefore there is ample scope for future research work

VI. Conclusion

It is concluded as per the findings of the study that role clarity in technology usage should be maintained, so that it do not add to the stress levels of the bank employees. Likewise, the negative effect of technology characteristics like usefulness, reliability and complexity can be reduced by introducing proper infrastructure and training facilities for the end-users. The work-life conflict can be resolved by adopting flexi-time working and other relaxation techniques for reducing technostress.

It is further added that, in foreign countries the concept of technostress is well researched (Viator, 2001) but in the present study tries to explore its antecedents in Indian context. This study also concludes that there is varying effect of technostress on employees as per age, education level etc. Therefore, different strategies are required to manage technostress which can be extensive and regular training programs for adults and easy to understand training modules should be prepared as per the education levels of employees. Today, Technostress is a widely studied topic as it is having an adverse effect on employees' health, well-being and productivity.

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