

Impact of Technostress on Job Satisfaction: An Empirical Study among Indian Academician

R.K. Jena

Institute of Management Technology, Nagpur, 440013, India

E-mail: rkjena@imtnag.ac.in

Abstract

The contemporary world is becoming very stressful due to the fast changing Information and Communication Technology (ICT). Academic Institutions are also heavily depending on technology for teaching, learning and research. Therefore the pressures of ICT use in academics create technostress among academicians. Technostress can reduce employee satisfaction and create dissonance in the work environment. This study emphasized the impact of technostress on Job satisfaction among academicians in India. The study used Structural Equation Modeling (SEM) method to find the relationship between technostress creators and Job satisfaction. The findings showed a negative impact of technostress creators on job satisfaction.

Keywords: Job satisfaction, Technostress, Indian Academician, Technostress creators.

1. Introduction

Technology is becoming an integral part of every dimension of today's society. Technostress is a modern disease caused due to inability to cope with the new technologies in a healthy manner. These diseases manifest itself in the process to accept and adopt computer technology efficiently in work place. Those who struggle to accept computer technology often feel pressure to accept and use computers. On the other hand, technological advancement and revolution in organisation has not only improved efficiency and effectiveness but also helps reduce the problem of boredom and fatigue in the workplace¹. The advancement of technology has also been a dominant force in improving and enhancing the teaching pedagogy in colleges and universities. In the same time, the rapid change of technology causes technostress among academicians in all types of educational institutions.

1.1. Technostress

The term technostress was first coined by clinical psychologist Dr. Craig² in 1984 and defined as:

“Technostress is a modern disease of adaptation caused by an inability to cope with the new computer technologies in a healthy manner. It manifests itself in two distinct but related ways: in the struggle to accept computer technology, and in the more specialized form of over identification with computer technology.”

It is true that initially researchers looked at technostress as a disease. But, later researchers considered it more as an inability to adapt the changes brought by Information and Communication Technology (ICT). Davis-Milis³ found technostress as a pressure to adapt the new technology especially when there is inadequacy of the technology standard and training supports. But, according to Clark and Kalin⁴, the cause of technostress is the inefficiency to cope with the technological changes in the organization. They found that technology is not responsible for technostress, but technostress is a natural reaction to the technology. So, in order to manage and reduce technostress, each employee should be ready to adopt the new technology.

Technology has changed very fast since 1988, when the term technostress was first coined by Dr. Craig.²

The utilization of information and communication technologies (ICTs) in today's information driven society is very essential. There is no meaningful professional and economic growth and development can be possible without its utilization. Several benefits such as increased productivity, efficiency, accuracy, space economy and routine are derivable from the proper utilization of ICT⁵. On the other hand, technostress is becoming an un-avoiding part of technology use and many factors have been identified to define technostress more precisely. Tarafdar, Ragu-Nathan, and Ragu-Nathan⁶ described technostress as a problem of adaptation due to a person's inability to cope with or to get used to the technology. They identified five components of technostress as follows:

- **Techno-overload:** A situation where technology (ICT) users are forced to work faster and longer.
- **Techno-invasion:** A situation where technology (ICT) users felt that they can be reached anytime or constantly "connected" which caused a blurring between work and personal contexts.
- **Techno-complexity:** A situation where technology (ICT) users feel that their skills are inadequate due to the complexity associated with the use of technology. As a consequence, they are forced to spend time and effort to learn and understand various aspects of technology.
- **Techno-insecurity:** A situation where technology (ICT) users feel threatened. They felt that they will lose their job either being replaced by the technology or by other people who are better in technology compared to them.
- **Techno-uncertainty:** A situation where technology (ICT) users feel uncertain and unsettled since technology is continuously changing with time.

1.2. Job Satisfaction

Job satisfaction is an emotional feeling of an employee about his/her job. Job satisfaction may be positive or negative. Irrespective of fields of knowledge, the construct job satisfaction has received substantial consideration of importance from researchers over last few decades due to its contributions toward employees' job performance and attainment of organizational goals⁷. In past, research findings were revealed that a satisfied employee is an effective job performer. Therefore, job satisfaction of academician can be one of the considerable dynamics in augmenting job performance and commitment. Job satisfaction is portrayed as an emotional attitude of person towards his/her job^{8,9}. Job satisfaction plays an important role in enhancing organisational productivity. The major dimensions of

job satisfaction are pay, promotion, supervision, job conditions, and benefits^{10,11}. These dimensions are classified as; 1) intrinsic satisfaction; it signifies a category of situation or tasks that makeup the job, such as skills etc. and; 2) extrinsic satisfaction; it refers to work state of affairs, for instance pay, co-worker, etc.¹²

2. Literature Review

In 21st Century, use of Information and Communication Technologies (ICTs) became a necessity in every individual's life. Early interactions with ICTs were mostly limited to the organization. But, with the advances in ICTs, the interactions now pervade organizational and personal spheres. These interactions force individuals to adjust with the use of ICTs¹³. These adjustments range from integration of ICTs into workplace, to the fear of becoming obsolete, to the phenomenon of technostress etc.^{13,14}. Basically, technostress is the feeling of anxiety and it has the negative impact on thoughts, behaviors, attitudes, and body, when a person is expected to deal with technology^{15,16}.

Universities all over the world are among the major organizations where ICT facilities are being used on a large scale to increase the productivity and knowledge acquisition¹⁷. However, while the benefits of ICTs adoption and utilization are not in doubt, it is also true that the adoption, rapid diffusion and utilization of ICTs in teaching and learning have developed number of demands and challenges such as technostress and job burnout into workplace. Technostress is described as one's inability to cope or deal with ICTs in a healthy manner². Addressing technostress is very important for organizations, because it can impact individuals' health and productivity^{6,18}. Previous researches in technostress have mostly focused on the consequences of technostress on performance and satisfaction^{6,19}. Past literatures found that the rise of occupational stress is one of the major challenges of technological revolution in the workplace^{20,21,22}. The usage of advanced ICT technologies like computer integrated system, CD-ROMs and multiple databases, the Internet and World Wide Web have also caused an enormous amount of strain on academicians. Occupational stress has been found to have negative influence on employee satisfaction. It is also found that the higher levels of stress have been associated with lower organisational commitment and satisfaction^{23,24}.

There are many studies showing correlation between job satisfaction, job performance, and technostress. Raftar (1998)²⁵ found a positive association between technostress and job performance i.e. adopting new technology effectively led to better

performance and vice versa. Although technologies are now a basic component of academic activities in the form of automation, digital learning²⁶, but numerous academicians are suffering from technostress. The utilization of ICT in academic in different forms such as teaching, learning and research etc has caused technostress. These technostress significantly reduced the workers (academicians) over all job satisfaction²⁷. Technologies have facilitated the easy work environment for employees in different organization. So, they need to learn about the new ICT skills to adopt the changes. On the other hand, ICT induced technostress among academicians. There are multiple issues in learning of these technological innovations such as age, technological competencies, attitude towards the adoption of technology, stress management programs, information overload, job insecurity and appropriateness^{6,18,27,28,29,30}. Ragu-Nathan et al. (2008)¹⁷ found a negative association between technostress and job satisfaction. It means that increase in technostress in their work place decreases the satisfaction significantly. It also means that job satisfaction can be enhanced by efficiently controlling the technostress among workers by the concerned organization. They also indicated that techno-complexity, techno-insecurity, techno-overload, techno-invasion, and techno-uncertainty are negatively correlates with job satisfaction. Sinha²⁶ found that employees suffering from technostress have low productivity and job satisfaction. Ayyagari²⁸ has also identified a negative correlation between technostress and job satisfaction. He further elaborated that fast changing technology is a strong predictor of job dissatisfaction among employees. Pors (2003)²⁷ found a strong correlation between job satisfaction and level of stress due to technology and other demographic characteristics. Many studies indicated that there is a relationship between stress and job satisfaction due to fast changing technological innovations .

In last couple of years India is on the verge of an Internet boom with a projected user base from 330million in 2014 to 370million by 2015³¹. India will become the second largest in the world and largest in terms of incremental growth by 2015. The penetration

of ICT in Indian education system has largely influenced the teaching pedagogy, research orientation among academicians. But large section of academicians is not very ICT savvy. This is the one of the important reason of technostress among academicians in India. So, a study is required to measure the adverse effect of technostress among Indian academicians. Unfortunately, best of my knowledge there are no such studies have been conducted so far among Indian academicians. Therefore, based on the above literature review, this research was designed to measure the effect of technostress on job satisfaction among Indian academicians. The next section, discusses the proposed model used for this study.

3. Theoretical Framework and Hypothesis

There are mainly five different types of technostress creators (Techno-overload, Techno-invasion, Techno-complexity, Techno-insecurity, and Techno-uncertainty) have been identified in literature⁶. In this model (shown in fig. 1) different factors of technostress were treated as independent variable while job satisfaction was treated as dependent variable. Based on this model, the following hypotheses were formulated:

- H1:** *There is a statistically significant relationship between techno-overload and job satisfaction among university teachers*
- H2:** *There is a statistically significant relationship between techno-invasion and job satisfaction among university teachers*
- H3:** *There is a statistically significant relationship between techno-complexity and job satisfaction among university teachers.*
- H4:** *There is a statistically significant relationship between techno-insecurity and job satisfaction among university teachers.*
- H5:** *There is a statistically significant relationship between techno-uncertainty and job satisfaction among university teachers.*

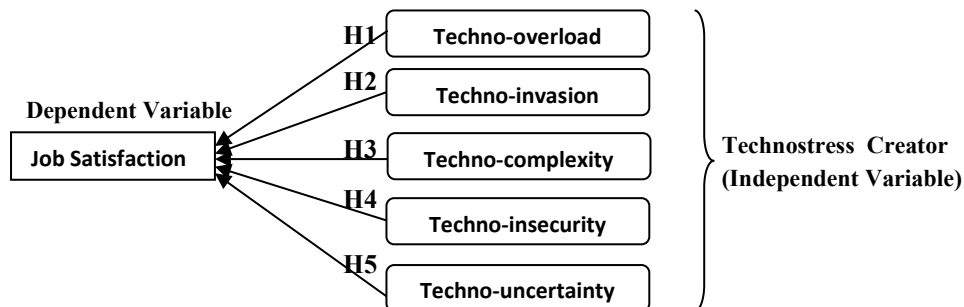


Fig. 1. Proposed relationship Diagram

Table 1. Demographic Information of sample

Attribute	Characteristics	n	(%)
Gender	Male	117	58
	Female	99	42
Age	Below 35	103	46
	Above 35	113	54
Marital Status	Bachelor	85	39
	Married	131	61
Duration of Service	≤ 5yrs	56	26
	6-10yrs	45	21
	11-15	54	25
	16-20	33	15
	≥ 21	28	13

4. Methodology

4.1. Population and Sampling Techniques

A survey method was employed to collect data regarding demographic profile, technostress and job satisfaction levels of teachers of various universities and colleges in India. The target sample size of 350(N) was considered for this empirical investigation. Out of

350 questionnaires distributed through e-mails and social forum, only 226 questionnaires were returned. After, initial data screening, only 216 questionnaires were found suitable as useable after discarding missing, erroneous or incomplete data for further statistical analyses. The survey response rate was calculated as 62%, which confirms the standards of social science research³². “Table 1” shows the demographic description of the sample.

4.2. Measuring Instrument

The five dimensions (total 20 items) of technostress⁶ and overall job satisfaction (total 3 items) along with demographics scales were used for this study. Responses on all items were gathered through 5-point Likert scale anchored as 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree.

4.3. Data Analysis

The factor analysis with principal component analysis (orthogonal varimax) procedure was applied in the collected data in order to verify the construct validity of the factors.

Table 2. Result of Factor Analysis

	Techno-overload (OV)	Techno-invasion (IN)	Techno-complexity (CO)	Techno-insecurity (INS)	Techno-uncertainty (UN)	Job Satisfaction (JS)
OV1	0.81					
OV2	0.79					
OV3	0.83					
OV4	0.64					
OV5	0.66					
IN1		0.65				
IN2		0.78				
IN3		0.67				
IN4		0.66				
CO1			0.71			
CO2			0.78			
CO3			0.68			
CO4			0.72			
CO5			0.64			
INS1				0.61		
INS2				0.77		
INS3				0.62		
INS4				0.72		
INS5				0.58		
UN1					0.61	
UN2					0.84	
UN3					0.78	
UN4					0.59	
JS1						0.67
JS2						0.82
JS3						0.77

Table 3. Result of Goodness of Fit

Model Indices	Values
Chi-square/degrees of freedom	1.4
Goodness-of-fit index (GFI)	0.91
Adjusted goodness-of-fit index (AGFI)	0.82
Normed fit index (NFI)	0.93
Tucker–Lewis index (TLI)	0.93
Comparative fit index (CFI)	0.94
Root mean square error of approximation (RMSEA)	0.05

4.3.1. Factor Analysis

The first task of this analysis was to check the factor structures of the constructs and confirm them with the original studies. So, the exploratory factor analysis was conducted using collected data. It yields six factors as shown in “Table 2”. All the factor loadings (Table 2) were at an acceptable level, and there were no cross-loadings above 0.4.

In addition, the procedure suggested by Harman’s single-factor test for common method bias was adopted and found that no single factor explains the majority of the variance in the variables, thereby providing evidence against single-respondent bias³³.

Even though exploratory factor analysis provided a measure of convergent and discriminant validity of constructs, it does not test for possible error correlations among items. Therefore a measurement models using confirmatory factor analysis for each first-order construct was developed using structural equation modeling (AMOS). Then a first-order correlated model on these ‘6’ factors was run to identify significant correlations among their error terms. The model fit indices were shown in “Table-3.”

But based on the past literature, the recommended values for chi-square/degrees of freedom should lies between ‘1’ and ‘5’³³. According to Hair³⁴, GFI > 0.85 and AGFI > 0.8 represent an acceptable fit. Recommended values for NFI and TLI are > 0.90, and for CFI > 0.90³⁴. RMSEA values less than 0.1 signify a good fit^{33,34}. So, the values found from “Table 3” for different model indices satisfy the acceptable levels mentioned above. This implies that there are no significant correlations between the error terms. Therefore, it confirms the convergent and discriminate validity among the factors.

After the first order model, the six factors were further analyzed at the second order level. The analysis was carried out to achieve a valid model fit for the data obtained as well as theoretical supports behind the developed model. The second-order constructs for the six factors were verified by calculating the ratio of the chi-square values of the first-order and second-order models³⁶. It basically indicates the percentage of variance explained by the second-order model compared to the first-order correlated model. The t-coefficient value in this case was found 0.94. According to Marsh³⁶, the recommended value for this coefficient is 0.8. So, the second-order coefficients in the measurement model are found to be significant at the 0.05 level. This indicates the presence of the second-order construct. Therefore after the tests, technostress and job satisfaction were found as second order construct. Technostress comprised of five first-order sub-constructs (techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty), where as Job satisfaction had only one sub- component.

Table 4. Result of descriptive statistic

	Mean	Standard Deviation	Cronbach’s alpha
Techno-overload (OV)	3.01	0.72	0.83
Techno-invasion (IN)	2.12	0.81	0.87
Techno-complexity (CO)	2.89	0.67	0.82
Techno-insecurity (INS)	2.23	0.78	0.78
Techno-uncertainty (UN)	3.26	0.57	0.83
Job Satisfaction (JS)	2.07	0.89	0.74

Table 5. Correlations between Technostress Creators and Job Satisfaction

	OV	IN	CO	INS	UN	JS
Techno-overload (OV)	1	-0.4*	0.19	0.36	0.23*	-0.71*
Techno-invasion (IN)		1	0.51	0.47	-0.13	-0.83*
Techno-complexity (CO)			1	0.48*	0.14	-0.82*
Techno-insecurity (INS)				1	0.02	-0.79*
Techno-uncertainty (UN)					1	-0.77*

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

Table 6. Result of Hypotheses Testing

Path	Unstd. Factor Load.	Std. Factor Load.	t-value	p	Result
OV → JS	-0.23	-0.16	-2.34	0.00	Accept
IN → JS	-0.26	-0.18	-1.23	0.01	Accept
CO → JS	-0.31	-0.21	-2.14	0.00	Accept
INS → JS	-0.29	-0.21	-1.89	0.03	Accept
UN → JS	-0.25	-0.19	-2.12	0.01	Accept

The factor reliabilities (Cronbach's alpha), means, and standard deviations in the context of university teachers in India were shown in "Table 4". The Cronbach's alpha was used as reliability score of the scales. Nunnally³⁵ recommended at least 0.70 alpha coefficients for social sciences as acceptable. The internal reliabilities of overall scale were calculated and found high internal consistency and reliability for all variables (Table 4).

The results in table-5 showed no correlation greater than 0.7 between technostress creators. So, it can be asserted that there is no problem in multicollinearity in the collected data. But strong correlations found between technostress creators and job satisfaction.

4.3.2. Path Analysis and Hypothesis Testing

The Structural Equation Model (SEM) was used to test the proposed hypothesis. The results of the structural equation model in form of standardized factor loading, standard errors, and t-value were shown in table 6. It was also found that most of the standard errors were less than 0.1. Therefore, the results of SEM were found reliable.

It was found that technostress creator (OV) significantly affect the job satisfaction ($p=0.00<0.05$, $t=-2.34$). Therefore hypothesis (H1) was accepted. The negative t-value (-2.34) implied that the increase in OV reduce job satisfaction. Similarly, all the technostress creators (IN, CO, INS, UN) significantly and negatively affect technostress. That increase of any of the technostress creator decreases job satisfaction among Indian academician. Therefore all the hypothesis (H1, H2, H3, H4, H5) were accepted.

5. Discussion

The goal of this research was to extend the technostress literature by associating job satisfaction with five important technostress creators in Indian condition. This research was used personal environmental

framework to explain why the misfit between individual abilities and computing enabled environment demands, lead to technostress. The results of this research showed a direct impact of technostress on job satisfaction. Similar results have been reported by Ragu-Nathan et al.¹⁷ in their research. They found that academicians, who attempt to cope with technostress are likely to have less negative impact on their jobs. As far as technostress is concerned, recent studies have investigated the influence of technostress on job satisfaction^{17,37,38,39}. Weil and Rosen²⁰ and Brod² reported that technostress is responsible for information fatigue, loss of motivation, and dissatisfaction at work. Similarly, Corbett et al. (1989)⁴⁰ found work changes resulting from the use of computer-base technologies were associated with decreased job satisfaction. All the past findings were similar to findings of this research. Overall the summary of this research found that the existence of technostress creators lead to decline in job satisfaction. This fact has been supported by many researchers^{19,39}. Therefore from the above discussion, it was found that user experience the "technostress" due to information overload, ICT invasion of personal life, complexity of IS, and a sense of insecurity due to rapid change in ICT. Technostress may significantly reduce job satisfaction, commitment, innovation, and productivity. A consequence of technostress leads to job dissatisfaction, which promotes low productivity and high employee turnover in academic organizations.

6. Conclusion & Recommendations

This research was conducted to study the impact of technostress and job satisfaction among academicians in India. The results showed a negative impact of technostress on job satisfaction among Indian academicians. It is hoped that the results provided in this research provide an avenue for academic institutions to address technostress. Given the fast changing ICT trend and an increasingly faster-paced stressful work environment, it seems reasonable to

develop effective training and wellness programs to decrease academicians' stress levels and to enhance their sense of technological mastery and personal value in Indian condition. Finally, as a result of this study, the following recommendations may be made in accordance with previous studies^{41, 42}.

- Establishment of time management and healthy environment to ensure the acceptance and acknowledgement of technology as a vital aspect of academic life.
- Ensuring the procurement of relevant technologies by the academic institutions and providing the opportunity for personal development to academicians regarding the use of these technologies through seminars, training, courses etc.
- Creating the awareness of new technological developments from time to time.

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