Technological stress Coping Strategies - a study among employees working in and around Chandigarh By

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Abstract- The computer has turned out to be very essential to the modern life and life without it is becoming incomplete and meaningless as one can easily get connected to the network through it and collect all the information on various issues from different parts of the world without much effort. In higher education the use of technology has been becoming important. All the work is becoming online with the coming of the concept of e learning. Individuals formulate various methods to cope with the psychological and behavioral symptoms of Techno stress. In this paper an attempt is made to study the coping strategies employed by Teaching and Non Teaching Staff working among colleges in and around Chandigarh.

I. INTRODUCTION

The present era is known as computer or digital era as all work nowadays is carried in a networked environment with more and more use of technology. Since the computer has turned out to be very essential to the modern life and life without it is becoming incomplete and meaningless as one can easily get connected to the network through it and collect all the information on various issues from different parts of the world without much effort. Moreover, technology is dominating the lives of people of all ages and is used for various activities like watching movies, listening to music, surfing important information on various topics, get connected to peers through social media and for carrying all sorts of sports activities. It also helps in preparing important office documents and research oriented writings. One can send emails, do chatting, video-conferencing and socially interact with outside world with just a click. In business also it is very helpful as we can find sources for information on various business related issues and find solutions to all difficult operational and mathematical problems. So, we need to embrace it and learn how to use new emerging technologies to work effectively for accomplishment of organizational and personal goals.

II. TECHNOLOGY IN EDUCATION

Technology in education relies on encompassing both material objects, such as machines and networking hardware, and also broader aspects of education such as organizational systems, learning methodologies and techniques, and skills assessments. According to Al-Fudail and Mellar in the past decade, teachers have become exhibiting technostress because of the application of technology in their schools.

In higher education the use of technology has been becoming important. All the work is becoming online with the coming of the concept of e learning. Teachers are also required to maintain all the record and teach in smart class rooms with the advent of technology. With the more and more use of technology stress levels among the academicians has also increased which has lead to the necessity of the study of the symptoms of stress level and ways of coping it. Previous studies have shown that information communication technologies may be related to stress, but the specific kinds of stress related issues have not been fully researched. Following are the various techno stress symptoms given by various authors:

III. TECHNO STRESS

Technostress is the negative psychological relationship between people and technology. It is the association that is being brought about by employing information technologies at work places and a outcome of habits indulging from its undue usage. Employees feel techno stress when are forced to respond to work-related information promptly, are engaged in multitasking and are required to be connected to share constant updates. With the advent of technology, employees are required to work faster as the information flows faster. They have less time to spend on sustainable thinking and creative analysis for being more resourceful to an organization.

So, it is evident from above that computer affects the work related environment and the individuals too who are working in that environment. Individual is not only related to stress form the use of computer but stress is also felt due to the use of other technologies in various day to day activities like mobile phones, I Pad, faxes and email he receives. He can also be prone to stress if he is not able to cope up with the job requirements.

Nowadays, employees are spending long hours on computers resulting in physical and psychological stress. It leads to severe health issues as well. While taking into account the increase in frequency of these ailments in our daily lives, it can be said that due to techno stress our lives is affected to a large extent.

IV. COPING STRATEGIES

With the introduction of latest technology and rapid technological changes there is pressure on working professionals to make use of these technologies causing technological stress. Managers should organize technology-based trainings and workshops for employees to make them at ease with the usage of technology and aware them with its harmful effects. It is crucial for employees to consistently update their technological skills. Institutions, companies, and agencies are needed to employ IT specialist and troubleshooters to maximize system accessibility and employee effectiveness.

According to Van der Linde (1999:47-50), the integration of the most well-known coping models generate following two main types of strategies:-

Approach Strategy (task-oriented response)- An approach strategy is distinct when a person feels capable of handling a stressful situation effectively and is able to deal with stress symptoms. Normally, this response means that the individual independently appraises the situation, works out alternative solutions, decides an appropriate strategy, evaluates feedback and takes action.

Avoidance Strategy (defense-oriented response):- Avoidance strategy is when a person's feelings of proficiency are seriously threatened by a stressor. His behaviour is directed at protecting himself from damage and dread than at resolving the issue.

Generally, when an individual use defense oriented responses devising task-oriented action in spite of an superseding apprehension maintaining integrity, the endeavor prove to be ill advised and self defeating.

According to Strümpfer (1986), people cope with stress mainly in two distinct ways:

Regressive coping can be explained through statements like "you are not enough" and in corresponding statement like, "stress is not good for you" – resulting in avoiding stress (Strümpfer, 1986:552).

Similarly, Brod's (1984) also observed techno anxious behaviour among the individuals which is explained under:-Techno Anxious people perceive computer technology to be threatening. They are reluctant towards computers, and struggle to accept computer technologies (Brod, 1984:17).

When an individual does not shun or evade from the circumstances initiated by a stressful incident but confronts it, transforming it into a prolific, growth promoting incident: transformational coping takes place (Strümpfer, 1986:553).

Since, different people react to a situation unlikely coping with technostress becomes difficult. It seems that, all reactions to stress, from making a self instruction plan to avoid a situation, all are different ways of coping. Some, however, have added advantage at workplaces, and more likely to thrive than others (Kupersmith, 1992).

However, individuals formulate various methods to cope with the psychological and behavioral symptoms of Techno stress. Following are some of the ways to cope with techno stress:-

Attending Computer Course- Academicians constantly try to learn and change to cope with technology stress. Some attend various Computer courses to effectively use the technology. This enhances their knowledge and they become well versed with use of technology at their work place. This has proved very helpful for the academic staff and the staff working at clerical level as well.

Attending workshops and Presenting Papers in Seminars & Conference- Academic Staff working in different colleges usually attend various workshops to enhance their knowledge and skill. Most of them also present papers in seminars and conferences to know about new developments at the college level. It is also very helpful for the new recruits working in different organizations.

Learning to write programs, Computer Terminology and using different software's- Computer terminology is not easily understood by a layman. So, to be well versed employees nowadays learn to write different programs and keep on searching the ways of using different software's installed in different organizations to speed up the work and improve their efficiency. To identify electronic resources- In the modern organization, to be effective, the individual must know a lot and be able to think his/her way through new problems (Baldwin, 1995). Employees need to constantly update their knowledge by reading Magazines, Journals, articles related to computers. They should also know about all the electronic resources available which enhance their capability and capabilities.

Better communication with colleagues- Technology helps in the professional and economic expansion and growth. While utilization of technology several benefits such as increased productivity, efficiency, accuracy, space economy and reduction in drudgery and routine are consequential. It further helps us better communication within the environment with our colleagues.

Regular Exercise and Balanced Diet -Regular exercise, Meditation and yoga and balanced diet is essential to

maintain a healthy and prosperous life which increases your energy level and you are able to cope with stress in en efficient way. Within the modern work environment it is easy to be drawn into the cerebral, precise, high-speed world of the computer. This can cause one to forget the intimate connection between body and mind, which may contribute to the arousal of technostress (Kupersmith, 1992).

Anticipating Techno Stress - Computer users sit before computers for long hours each day. At home also they spend long hours in front of the television set, video games, and other electronic equipment. The trend towards home based offices increases the tendency to lead a inactive life which is the main causes for stress nowadays. So, we shall accordingly plan our strategy to reduce stress caused due to sedentary life style.

Set Achieving Goals and Find Group goals- The goals set for the employees should be attainable as overlapping often leads to technological stress. Moreover, the employees should work in harmony with other employees so as to achieve group goals effectively as computer user in a company does not work on his own.

Positive Attitude- The best way to deal with stress is to develop a positive attitude towards your environment, your peers, colleagues, with the group you are working and towards the technology you are using. Also, cultivating a sense of humor, and specifically the ability to laugh at one's own situation, may be the most important technique of all; it is certainly the best barometer of psychological health (Kupersmith, 1992).

Time Management - Time-role boundaries enable the individual to switch roles during the day without slipping into utter chaos just as interpersonal and perceptual boundaries protect the area in which one operates, Most people assume a variety of roles – professional, parent, friend, lover, child, playmate, and more, all in the span of 24 hours (Rosen & Weil, 1997a:54). One way to keep sane among all these changes is through the use of time boundaries assigned to various roles. Technostress can become a self-fulfilling prophecy. The perception that one is a victim can get in the way of constructive choices and actions. (Kupersmith, 1992).

Redesigning Jobs and Organization Structure - The reason why computers are so complicated, according to Rosen and Weil (1997a:33), is because today's technology is indistinguishable. Earlier, broken things could be easily fixed but with the advent of new technology it had become difficult.

Eventually, going through all the possible coping strategies enumerated by various authors, various coping strategies employed can be as follows:-

- 1. Attending to Computer Course
- 2. Attending workshops and getting hands-on experience
- 3. Presenting Papers in Seminars & Conference
- 4. Learning to write programs
- 5. Learning to use different software's
- 6. Learning Computer Terminology
- 7. To know about all the electronic resources (eBooks, E-journals, etc.)
- 8. Reading Magazines, Journals, articles related to computers
- 9. Erasing and Deleting unwanted Files
- 10. Learning more about user friendly hardware and software
- 11. Better communication within the environment with our colleagues
- 12. Regular Exercise
- 13. Meditation/Yoga
- 14. Listening to Music
- 15. Positive Attitude
- 16. Time Management
- 17. Hands on Practicing the technology
- 18. Get Message Therapy
- 19. Discuss Techno Stress and plan for it.
- 20. Set Achieving Goals
- 21. Balanced Diet
- 22. Take Frequent Breaks
- 23. Seek or Find Group GOALS
- 24. Redesigning Jobs and Organization Structure

V. OBJECTIVES OF THE STUDY:

The objectives of the study are:

- 1. To outline the Techno Stress Coping Strategies.
- 2. To reduce the data by deriving variables for Techno stress coping strategies.

VI. PROBLEM FORMULATION:

Universities all over the world are among the major organizations where Information and Communication Technologies are being used on a large. However, in spite of various benefits of Technology, it is also true that the adoption and utilization of technology have brought about a number of demands and challenges such as technostress and job burnout into workplace.

In the field of education the use of technology has been increasing. Nowadays after the trend of E learning in various universities academicians need to provide notes to students through internet and attendance and assessment are also made online in various colleges and universities. Further due to the change in teaching methods like teaching in smart classrooms they had to cope up with the technology. Non teaching staff had also to use lot of technology for which they had to spend long hours before computer and other technologies like mobiles, fax etc. So an attempt will be made to study the causes or factors of stress among teaching and non teaching staff working in colleges

VII. RESEARCH METHODOLOGY

7.1 Research Problem

The research problem is to study all the aspects related to Techno stress and devise various coping strategies for the same for which statement of problem would be:-

- To outline Techno stress symptoms
- To determine techno stress coping strategies using Factor Analysis

7.2 Research Design

The research type will be exploratory research because the entire research is based on questionnaire and analysis. There will be detailed description in the research, so this will be descriptive design.

7.3 Sampling Unit And Sampling Size

The sample for the present study would comprise of around 300 employees who comprise of 200 employees at Teaching level and 100 at Non teaching level. The participants would be selected using probability method i.e. stratified sampling technique, wherein the strata would be of only the Teaching employees and Non teaching employees, and the selection of sufficient subjects would be done randomly from these stratums, which would be the exact representation of the population. The participants would be Teaching and Non Teaching staff working in Colleges and Management Institutes in Chandigarh Region.

VIII. FACTOR ANALYSIS FOR COPING STRATEGIES

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
Attending to Computer Course	3.4698	.92520	298
Presenting Papers in Seminars & Conference	3.5000	.90732	298
Learning to write programs	3.4430	.87911	298
Learning to use different software's	3.6711	.82424	298
Attending workshops and getting hands-on experience	3.6846	.87299	298
Learning Computer Terminology	3.6812	.79712	298
To know about all the electronic resources (eBooks, E-journals, etc.)	3.7148	.76707	298
Reading Magazines, Journals, articles related to computers	3.6208	.80435	298
Erasing and Deleting unwanted Files	3.6477	.77851	298
	3.8188	.75704	298
Better communication within the environment with our	·3.9195	.72490	298
colleagues			
Regular Exercise	3.7584	.91122	298
Get Message Therapy	3.2584	1.01687	298
Meditation/ Yoga	3.9564	3.89268	298
Balanced Diet	3.6510	.86788	298
Listening to Music	3.8188	.87658	298
Take Frequent Breaks	3.8087	.85693	298
Discuss Techno Stress and plan for it.	3.5134	.94361	298

Set Achieving Goals	3.6141	.89635	298	I
Seek or Find Group GOALS	3.5403	.91750	298	
Positive Attitude	4.1477	.78174	298	
Time Management	4.1208	.82399	298	
Hands on Praticing the technology	3.9497	.89564	298	
Redisigning Jobs and Organisation Structure	3.4128	.97482	298	

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of	.923	
	4494.279	
Bartlett's Test of Sphericity	df	276
	Sig.	.000

Communalities

Initial	Extraction
1.000	.642
1.000	.570
1.000	.638
1.000	.804
1.000	.685
1.000	.758
1.000	.582
1.000	.572
	.638
1.000	.646
1.000	.503
	.585
	.552
	.185
	.618
	.633
	.616
1.000	.628
	.689
	.742
	.771
	.790
	.691
1.000	.556
	1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000

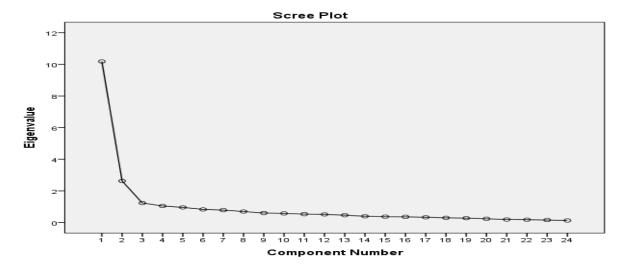
Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial 1	Eigenvalue	S	Extrac	tion	Sums	of	Squared	Rotati	on Sums	3	of	Squared
				Loadir	ıgs				Loadi	ngs			
	Total	%	of Cumulative	Total	%	of	Cumu	ılative %	Total	%	of	Cum	ulative %
		Variance	%		Variar	nce				Variance			

1	10.185	42.436	42.436	10.185	42.436	42.436	4.491	18.714	18.714
2			53.388						36.233
3			58.529						51.629
4			62.899						62.899
5	.957	3.987	66.885						
6	.832	3.465	70.351						
7	.786	3.277	73.628						
8	.697	2.902	76.530						
9	.603	2.512	79.042						
10	.578	2.408	81.449						
11	.533	2.223	83.672						
12	.514	2.141	85.813						
13	.466	1.941	87.755						
14	.397	1.654	89.408						
15	.373	1.554	90.963						
16	.360	1.501	92.464						
17	.334	1.392	93.856						
18	.298	1.242	95.098						
19	.277	1.154	96.252						
20	.238		97.243						
21	.193		98.045						
22	.182		98.802						
23	.157		99.455						
24	.131	.545	100.000						

Extraction Method: Principal Component Analysis.



Component Matrixa

	Component					
	1	2	3	4		
Attending to Computer Course	.660	416	001	182		
Presenting Papers in Seminars &	.645	377	083	.077		
Conference						
Learning to write programs	.656	425	.003	165		
Learning to use different software's	.677	494	.114	298		
Attending workshops and getting	.643	493	013	169		
hands-on experience						
Learning Computer Terminology	.636	477	.097	340		

To know about all the electronic	.610	387	.163	.182
resources (eBooks, E-journals, etc.)				
Reading Magazines, Journals,	.595	160	.033	.438
articles related to computers				
Erasing and Deleting unwanted Files	.549	220	.083	.530
Learning more about user friendly	.720	127	.150	.299
hardware and software				
Better communication within the	.644	.094	.166	.226
environment with our colleagues				
Regular Exercise	.712	.274	005	054
Get Message Therapy	.568	.299	368	069
Meditation/ Yoga	.192	.361	.102	088
Balanced Diet	.654	.359	226	099
Listening to Music	.635	.406	.229	109
Take Frequent Breaks	.639	.405	.101	183
Discuss Techno Stress and plan for	.676	.177	369	.064
it.				
Set Achieving Goals	.730	.083	386	.022
Seek or Find Group GOALS	.748	.082	402	.119
Positive Attitude	.691	.370	.397	.006
Time Management	.713	.400	.350	019
Hands on Practicing the technology	.753	.244	.231	104
Redesigning Jobs and Organization	.676	.123	284	048
Structure				

Extraction Method: Principal Component Analysis. a. 4 components extracted.

Rotated Component Matrixa

	Component			
	1	2	3	4
Attending to Computer Course	.730	.120	.226	.208
Presenting Papers in Seminars &	.567	.039	.295	.401
Conference				
Learning to write programs	.727	.112	.218	.223
Learning to use different software's	.859	.167	.120	.153
Attending workshops and getting	.767	.054	.206	.227
hands-on experience				
Learning Computer Terminology	.843	.156	.117	.093
To know about all the electronic	.533	.125	.074	.526
resources (eBooks, E-journals, etc.)				
Reading Magazines, Journals,	.236	.136	.234	.666
articles related to computers				
Erasing and Deleting unwanted Files	.216	.083	.153	.749
Learning more about user friendly	.357	.314	.211	.613
hardware and software				
Better communication within the	.197	.437	.221	.473
environment with our colleagues				
Regular Exercise	.219	.551	.445	.188
Get Message Therapy	.091	.299	.673	.043
Meditation/ Yoga	096	.400	.115	056
Balanced Diet	.125	.465	.618	.065
Listening to Music	.136	.732	.251	.123
Take Frequent Breaks	.158	.679	.358	.038
Discuss Techno Stress and plan for	.173	.250	.695	.229
it.				

Set Achieving Goals	.285	.219	.711	.232
Seek or Find Group GOALS	.250	.200	.733	.321
Positive Attitude	.157	.805	.133	.284
Time Management	.154	.815	.191	.257
Hands on Practicing the technology	.311	.692	.266	.212
Redesigning Jobs and Organization	.272	.286	.612	.159
Structure				

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Component Transformation Matrix

Component	1	2	3	4
1	.541	.521	.513	.415
2	696	.627	.274	218
3	.108	.541	813	.186
4	460	208	002	.863

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

This research consists of strategies adopted by the employees to cope with technology stress. After studying the literature, 24 coping strategies were taken. For dimension reduction, factor analysis was applied and the results were as follows:-

- 1. Descriptives:- According to Mean and Standard Deviation, data collected from the employees revealed that coping strategies mainly applied by the employees working in and around Chandigarh are information about all the electronic resources (eBooks, E-journals, etc.), positive attitude, time management, listening music, take frequent breaks, hands on practicing the technology, Better communication within the environment with our colleagues, learn more about computer hardware and software etc (Refer table)
- 2. Sampling Adequacy:- For checking the sampling adequacy Kaiser Meyer Olkin Measure is applied. This measure varies between 0 and 1 and the values close to 1 are better. Suggested minimum value is 0.6. In the present study KMO measure was found to be 0.923 which is closer to 1 and better than suggested. So, we can say that sample was adequate.
- 3. Barlett Test Of Sphericity:- In this test, correlation matrix is an identity matrix in which all the diagonal elements are 1 and all off diagonal elements are 0 and we need to reject this null hypothesis at 1% level of significance. P value in the present study is 0.000 which is good and indicates that the correlations are not near zero.
- 4. Communalities: Communalities are the proportion of each variable's variance that can be explained by the factors denoted as h square or sum of squared factor loadings for the variables. (Refer Table)
- 5. Total variance explained: Initial eigenvalues are variance of the factors. In this we assume that each factor has variance 1 and the number of rows is the number of factors retained. We keep those principal components whose eigenvalues are more than 1. In the present study, principal component retained are 4.
- 6. Component Matrix: Component matrix contains the component loadings, which are the correlations between variables and the component. For correlations, possible values ranges from -1 to 1 and the value less than 0.03 is meaningless.
- 7. Rotated Component Matrix: Rotated component matrix helps us to determine what the component represents. In the present research first component is most correlated with Learning to use different software's for which the value found was 0.843, Second component is most correlated to Time management (0.4).

After analyzing all the correlations, four components computed can be categorized as:

Component 1:- Attending to Computer Course, Attending workshops and getting hands-on experience, Presenting Papers in Seminars & Conference, Learning to write programs, Learning to use different software's, Learning Computer Terminology

Component 2:- Regular Exercise, Meditation/ Yoga, Listening to Music, Positive Attitude, Time Management, Hands on Practicing the technology, Take Frequent Breaks

Component 3:- Balanced Diet, Get Message Therapy, Set Achieving Goals, Seek or Find Group GOALS, Redesigning Jobs and Organization Structure

Component 4:- To know about all the electronic resources (eBooks, E-journals, etc.), Reading Magazines, Journals,

articles related to computers, Erasing and Deleting unwanted Files, Learning more about user friendly hardware and software, Better communication within the environment with our colleagues.

The above Computed components were named as:

- 1. Learning and development strategies:- Learning and development strategies includes Attending Computer Course , workshops and getting hands-on experience, Presenting Papers in Seminars & Conference, Learning to write programs , software's, and Computer Terminology
- 2. Information collection and assortment strategies includes knowing about all the electronic resources (eBooks, E-journals, etc.), Reading Magazines, Journals, articles related to computers, Erasing and Deleting unwanted Files, Learning more about user friendly hardware and software and having better communication within the environment with our colleagues
- 3. Relaxation and management strategies- Relaxation and management strategies includes Regular Exercise, Meditation/ Yoga, Listening to Music, Positive Attitude, Time Management, Hands on Practicing the technology and Frequent Breaks
- 4. Planning, Organising and Coordination strategies- Planning, Organising and Coordination strategies includes Balanced Diet, Getting Message Therapy, Setting Achieving Goals, Seeking group goals and Redesigning Jobs and Organization Structure

IX. CONCUSION

Technology dominates the lives of people of all ages. We can use it for performing various activities like watching movies, listening to music, surfing significant information on diverse topics, get associated with peers through social media and perform all sorts of sports activities. It also helps to prepare significant office documents and send emails, chat with your friends and colleagues, video-conferencing them and socially interact with external world. It also helps the researchers to write their thesis as all types of information can be obtained effortlessly and rapidly. In business world, it is helpful in finding sources for information on various business related issues and finding solutions to all complicated issues. In education sector, teachers exhibit technostress due to more and more applications and usage of technology in their schools. In higher education too, the use of technology is becoming vital. All the work is available online with the introduction of the concept of e learning. Teachers are also required to maintain all the records and teach in smart class rooms with the advent of technology. Further, with increase in technological stress among the academicians there comes the need to study the causes of stress, its symptoms and coping strategies employed to reduce it.

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