

A Comparative Study of Effect of Job Characteristics on Stress of IT- Professionals and IT-Teachers

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Abstract- People react to stress in different ways, some coping much better than others and suffering fewer of the harmful effects of stress. Just as stress differs as a function of the individual, it also differs as a function of one's type of job.

The trend of electronic business is so prosperous that the need for IT-Professionals and IT-Teachers increased because IT plays an important role in business operation. Employees of both professions face problem of stress due to different reasons. Although both professions need similar qualification, the stress level is different because of different job characteristics. Therefore, this study aims to compare the effect of job characteristics on stress of IT-Professionals and IT-Teachers.

The research paper focuses on the fact that how job characteristics affect differently on both professions' stress level. 66 IT-Professionals were selected from different IT Companies and 64 IT-Teachers from different management institutions located in Pune city were selected.

Keywords- IT-Professional, IT-Teacher, IT-Industry, Job Stress Inventory, IT-Companies.

I. INTRODUCTION

The trend of electronic business is so prosperous that the need for IT-Professionals and IT-Teachers increased because IT plays an important role in business operation. As there is strong demand of good IT-Professionals, the number of technical institutions, also increased substantially. With the increase in number of technical institutions, required number of good IT-Teachers also has increased. However, some problems exist in IT Professional labor market and IT-Teachers which may have impact on IT organizations and Teaching respectively.

Both fields, that is, IT Profession and IT Teaching, can be compared with each other because employees in both fields require similar type of qualifications. Depending on the interest and capacity, the graduate students accept either IT Company Profession or IT Teaching Profession. IT-Professionals and IT-Teachers have to acquire recent knowledge very fast. They need to have good interpersonal communication skill. But the job characters of both professions are somewhat different. Although, IT-Professionals get economic satisfaction because of high salary, they face problems of long working hours, tight deadlines, low ergonomics and upgrading themselves very fast. IT-Teachers, as compared to IT-Professionals, have

less working hours, poor deadlines. But they face the problem of good salary, job security, and problem of resources availability. Employees of both professions face problem of stress due to different reasons.

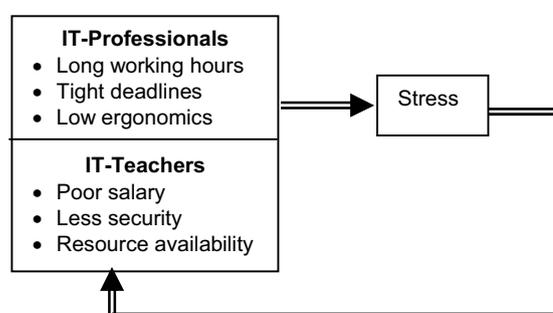


Figure 1: Relation between job characters and stress

The stress level is different in IT-Professionals and IT-Teachers as their different job characteristics. Therefore, this study aims to compare the effect of job characteristics on stress of IT-Professionals and IT-Teachers.

II. LITERATURE REVIEW

Stress in IT field that may IT Profession or IT Teaching is a common thing. Reasons may be different for both the professions but both areas are facing problem of stress. Large numbers of researchers have presented their views through publications in reputed journals, magazines and news papers. A complete review of all articles does not fall within the premises of the project report. Hence, only selected reviews and their main contributors are discussed in this section.

Pay-Chen Liu, et. al. [1] studies the effects of personal characters, stress coping styles and job self efficacy on burnout of IT-Professionals. He concludes that stress coping style is very important predictor of burnout and the second significant predicator of burnout is job self-efficacy.

Teacher burnout and its relations with stress, personality and social support are described by Kim-Wan MO [2]. Teachers who were single, of graduate status, and with fewer years of teaching experience had a higher level of burnout.

R. Ravichandran, et. al. [3] focuses on perceived sources of stress among the Teachers. The study shows that sex, age, educational levels, years of teaching experience and types of school, play a significant role in the perception of various sources of stress related to the teaching profession

Christina Maslach, et. al. [4] concentrates on the measurement of experienced burnout. Three subscales emerged from the data analysis: emotional exhaustion, depersonalization, and personal accomplishment. Various psychometric analyses showed that the scale has both high reliability and validity as a measure of burnout.

Work, Culture and Sociality in the Indian IT-Industry in the report submitted for Indo-Dutch program for alternatives in development is described by Carol Upadhyaya and A. R. Vasavi [5]. In this report, they mention that as IT-Industry and IT-Professionals work in completely new environment and working style, to co-op with it gives problem to IT Professional.

Sumedha Joshi [6] also gives reference of computer addiction or cyber addiction. This is a problem very similar to pathological gambling or compulsive shopping. She gives the symptoms of this addiction like; having sense of well-being while at the computer, inability to stop the activity and craving for more time at the computer, neglect family and friends, feeling empty, depressed or irritable when not at the computer.

According to Dr. Amrutraj [7], an article published in 'The Hindu', people working in the field of IT, go through a lot of anxiety, depression and loneliness because of their work environment and often exhibit feeling of inadequacy, lowered self esteem and work satisfaction.

The stress one experiences in the job vary from mild to severe depending on one's psychological, physiological and social make up is discussed by Chandraiah et. al. [8]. According to them, young adults (25-35 yrs) experiences more stress than middle aged (36-40 yrs). Late middle aged (46-60 yrs) experiences less stress than other two groups.

Stress management among IT-Professionals is worked out by T. S. Arunkumar [9]. Stress identified as one of the most serious health problems in IT-Industry, since 20th century. He suggests some reasons of this stress like unrealistic deadlines and expectations, cognitive demand of work, poor lifestyle of IT-Professionals, isolation from social life. He further describes this situation as vicious cycle; increased work pressure >> increased stress >> reduced productivity >> deadlines >> increased stress >> poor quality of life.

According to Gopal Mahopatra [10], an article published in 'The Hindu', the main reason for many IT-Professionals having lopsided work-life balance is the long working hours. They are left with little time for themselves or their families and this tells on their mental and physical health. Although, IT-Professionals are living in higher middle class criteria, they are not exactly on the spot when it comes to a good work-life balance and a happy marriage. According to

study by him, at least 62% have poor family relations, 28% have strained marital relations and 22% are either divorce or on the verge of it.

III. OBJECTIVE OF THE STUDY

The proposed study aims at comparing the job characteristics of both people. Another objective of the study is to investigate whether effect of job characteristics on stress of IT-Professionals and IT-Teachers is really different. The research question is as follows:

"Whether IT-Teaching is less stressful than IT-Profession?"

IV. HYPOTHESIS

For the study and comparison following hypothesis has been considered.

"IT-Teaching is less stressful as compared to IT-Profession because of job characteristics"

The null hypothesis that was considered for the study was

"IT-Teachers and IT-Professionals are facing similar level stress"

V. METHODOLOGY

The *scope* of the study is confined to some selected IT-Professionals in Pune (Maharashtra-India) city and selected IT-Teachers from All India Council of Technical Education (AICTE) recognized Engineering colleges, Management Institutions and Masters of Computer Applications (MCA) Institutions.

The Population and the Sample selected for the current study consisted of a sample of IT-Professionals and IT-Teachers from Pune city.

Primary data for IT-Professionals and IT-Teachers is collected using snowball sampling method. *Secondary data* is being collected from reviews, magazines, reports, newsletters, journals, newspapers, white papers and internet. Data is collected using questionnaire, both paper-based and electronic-based. For making the questionnaire, Job Stress Inventory (JSI) is used.

Questionnaire contained total 44 questions focusing on the organization s/he is working, working environment, stress problems s/he is facing. It contained 17 questions related to depression and anxiety because these two are basic symptoms of stress. There are 20 stress items suggested in JSI.

Convenient and snowball sampling methods were used to select the samples for data. 66 IT-Professionals from different IT-Companies like Compulink, DishNet Wireless Ltd., Infosys, InfoTech Solutions, MBT were selected for the study and 64 IT-Teachers from different Institutions who conduct computer related higher technical courses like MCA, M.Sc. (Computer and IT) were selected.

Convenience sampling means selecting sample units in a just ‘hit and miss’ fashion. This sampling also means selecting whatever sampling units are conveniently available.

Snowball sampling is a technique of building up a list or a sample of a special population by using an initial set of its members as informants. Then researcher can ask each one of them to supply samples known to them. Thus, the chain or network increases. This sampling can also be called as chain or network sampling.

VI. RESULTS

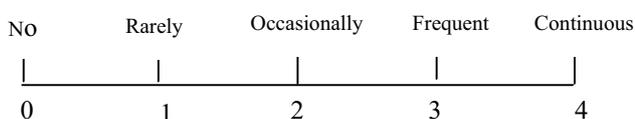
The sample demographics are shown in Table 1 including gender, age and number of years worked.

Table 1: Demographics of characters of sample

Parameters	Type of Sample	Type/ Number (%)
Gender	Professionals	(1) Male / 39 (49.09 %) (2) Female / 27 (41.01 %)
	Teacher	(1) Male / 25 (39.06 %) (2) Female / 39 (40.94 %)
Age (years)	Professionals	(1) 20 to 25 / 6 (9.09 %) (2) 25 to 30 / 17 (25.76 %) (3) 30 to 35 / 25 (37.88 %) (4) 35 to 40 / 16 (24.24 %) (5) More than 40 / 2 (3.03 %)
	Teacher	(1) 20 to 25 / 16 (16.5 %) (2) 25 to 30 / 19 (28.79 %) (3) 30 to 35 / 6 (9.09 %) (4) 35 to 40 / 8 (12.12 %) (5) More than 40 / 15 (22.73 %)
Number of years worked.	Professionals	(1) less than 1 year / 10 (15.15 %) (2) 1 to 3 years / 33 (30.00 %) (3) 3 to 5 years / 11 (16.67 %) (4) 5 to 7 years / 9 (13.64 %) (5) more than 7 years / 3 (4.55%)
	Teacher	(1) less than 1 year / 1 (1.56 %) (2) 1 to 3 years / 14 (21.88 %) (3) 3 to 5 years / 9 (14.06 %) (4) 5 to 7 years / 9 (14.06 %) (5) more than 7 years / 31 (48.44%)

The details of job characteristics are given in Table 2. The main job characteristics like salary, working hours, available resources, job security etc. are considered.

Questionnaire concentrated on seventeen different symptoms of stress e.g. depression, decreased enthusiasm, reduced appetite, ideas of hopelessness etc. Each symptom was given five options like no, rarely, occasionally, frequent and continuous. The Likert-Scale method is used for measurement and scale. The responses are scaled from 0 to 4.



Responses of all respondents to 17 questions are added to calculate overall stress the respondent is facing.

- Zero to 17 score- Minimum stress
- 18 to 34 score- Moderate stress
- 35 to 68 score- Maximum stress

Table 2: Details of Job Characteristics

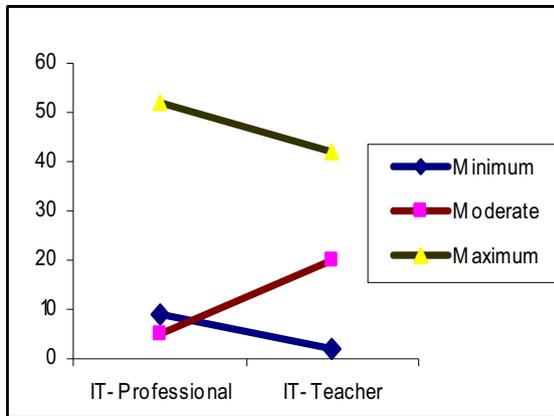
Parameters	Type of Sample	Option/ Number (%)
Working Hours	Professionals	(1) 7 hours / 7 (10.61 %) (2) 8 hours / 17 (25.76 %) (3) more than 8 hours/42 (63.64 %)
	Teacher	(1) 6 hours / 7 (10.94%) (2) 7 hours / 39 (60.94 %) (3) 8 hours / 10 (15.63 %) (4) more than 8 hours / 8 (12.50 %)
Do you work longer than official hours? (Long working hours)	Professionals	(1) No / 15 (22.73%) (2) > than 4 days / week/25 (37.88%) (3) 4 days in a week / 2 (3.03%) (4) < than 4 days / week / 21 (31.82%) (5) Not responded / 3 (4.55%)
	Teacher	(1) No / 33 (51.56%) (2) > than 4 days / week / 10 (15.63%) (3) 4 days in a week / 10 (15.63%) (4) < than 4 days / week/11 (17.79%) (5) Not responded / 0
Salary	Professionals	(1) < 10000 / ZERO (2) 10000 to 20000 / 10 (15.15%) (3) 20000 to 30000 / 22 (33.33%) (4) 30000 to 40000 / 19 (28.79%) (5) > 40000 / 15 (22.73%)
	Teacher	(1) < 10000 / 13 (20.63%) (2) 10000 to 20000 / 22 (34.38%) (3) 20000 to 30000 / 12 (19.05%) (4) 30000 to 40000 / 8 (12.70%) (5) > 40000 / 9 (14.29%)
Inadequacy of salary	Professionals	(1) No / 39 (59.09%) (2) Yes / 15 (22.73%) (3) Can't Say / 7 (10.61%) (4) Any other / 5 (7.58%)
	Teacher	(1) No / 10 (15.63%) (2) Yes / 44 (68.75%) (3) Can't Say / 6 (9.38%) (4) Any other / 4 (6.25%)
Resource Availability	Professionals	(1) No / ZERO (2) Rarely / 4 (6.06%) (3) Occasionally / 5 (7.58%) (4) Frequent / 20 (30.30%) (5) Continuous / 37 (56.06%)
	Teacher	(1) No / 15 (23.44%) (2) Rarely / 27 (42.19%) (3) Occasionally / 9 (14.06%) (4) Frequent / 8 (12.50%) (5) Continuous / 5 (7.81%)
Job Security (Do you think your job is secured job?)	Professionals	(1) No / 24 (36.36%) (2) Rarely / 11 (16.67%) (3) Occasionally / 10 (15.15%) (4) Frequent / 14 (21.21%) (5) Continuous / 7 (10.61%)
	Teacher	(1) No / 15 (23.08%) (2) Rarely / 6 (9.38%) (3) Occasionally / 14 (21.88%) (4) Frequent / 9 (13.85%) (5) Continuous / 20 (30.77%)

Table 3 shows the summary of responses to stress symptoms and it clearly shows that the number of IT-Professionals facing maximum stress is more than that of IT-Teachers. Graph 1 is pictorial representation of table 3.

Table - 3: Summary to responses to depression symptoms.

Type of Profession	Minimum	Moderate	Maximum
IT- Professional	9	5	52
IT- Teacher	2	20	42

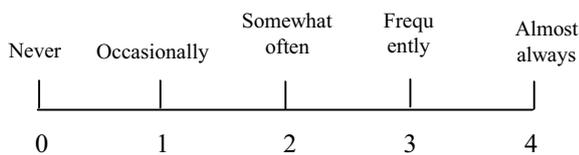
Graph - 1: Summary to responses to depression symptoms



To check the stress these two people are facing, another set of questionnaire is used from Job Stress Inventory. The inventory contains 20 different items like

- I fell little enthusiasm for doing my job.
- I feel tired even with adequate sleep.
- I feel frustrated in carrying out my responsibilities at work.
- I am moody, irritable, or impatient over small inconveniences.

The response options to these items were never, occasionally, somewhat often, frequently and almost always.



Responses of all respondents to 20 questions are summed to calculate overall stress the respondent is facing.

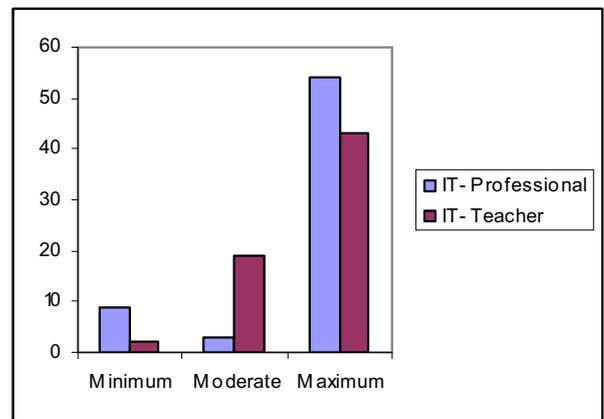
- Zero to 20 score- Minimum stress
- 21 to 40 score- Moderate stress
- 41 to 80 score- Maximum stress

Table 4 shows the summary of responses to stress items and the number of IT-Professionals facing maximum stress is more than that of IT-Teachers. Graph 2 graphically show how maximum number of IT-Professionals face the problem of stress.

Table - 4: Summary to responses to stress items

Type of Profession	Minimum	Moderate	Maximum
IT- Professional	9	3	54
IT- Teacher	2	19	43

Graph -2: Summary to responses to stress items



VII. HYPOTHESIS TESTING

The set hypothesis is checked using chi-square test. Table 3 and 4 are used to check hypothesis using chi-square test.

For two degree of freedom, at 1% level of significance, the table value is 13.28. The calculated value of X^2 is greater than the table value and therefore, the null hypothesis is rejected and working hypothesis may be accepted at 1% level of significance with respect to IT-Teaching is less stressful as compared to IT-Profession.

Table 5 : Calculation of X^2 for Table 3

O	E	O-E	(O-E) ²	(O-E) ² /E
9	5.58	3.415	11.6649	2.088748
5	12.69	-7.692	59.1716	4.662005
52	47.72	4.277	18.2921	0.383296
2	5.42	-3.415	11.6649	2.154021
20	12.31	7.692	59.1716	4.807692
42	46.28	-4.277	18.2921	0.395274
$X^2 =$				14.49104

Table 6 : Calculation of X² for Table 4

O	E	O-E	(O-E) ²	(O-E) ² /E
9	5.58	3.415	11.6649	2.088748
3	11.17	-8.169	66.7363	5.975016
54	49.25	4.754	22.5991	0.4589
2	5.42	-3.415	11.6649	2.154021
19	10.83	8.169	66.7363	6.161735
43	47.75	-4.754	22.5991	0.47324
			X ² =	17.31166

VIII. COMPARISON

Both professions need same educational qualification and expertise. But the characteristics of both professions are different. IT-Professionals are facing from the problems of long working hours, tight deadlines and poor ergonomics whereas IT-Teachers have problem of poor salary, job security and resource availability (Table 2).

IT-Teachers who have worked more than 7 years at one place are more (48.44%) than that of IT-Professionals (4.55%). Main characteristic of IT-Profession is long working hours and overtime. Working hours in IT-Profession is more and they have to do overtime. IT-Professionals work more than 8 hours. Whereas working hours in IT-Teachers is considerably less than that of IT-Profession and they do not work longer than their official working hours. But, IT-Professionals have to work more than official working hours. Rather, working more than official working hours is their routine. This job characteristic increases their stress.

IT-Professionals enjoy high salary profile. IT-Professionals get far more salary than IT-Teachers. The number of IT-Professionals whose salary is 20,000 to 40,000 is 39 and that of IT-Teachers is 22 only, whereas regular range of salary in IT-Teachers is 10,000 to 20,000. Most of the IT-Teachers do not get enough salary. They are not satisfied with whatever salary they are getting. This is the only reason stress level is seen in IT-Teachers although they do not have deadlines and long working hours.

Regarding the resource availability, IT-Professionals are more comfortable than IT-Teachers. More number of IT-Teachers (30.77%) has fear of job security in them. Upgrading our self in recent trends in IT is the need of the hour. But, due to lack in resource unavailability, IT-Teachers are not able to upgrade themselves in recent trends of IT. This can be another reason why IT-Teachers face problem of stress

Regarding the symptoms of stress, the symptoms like feeling work as pressure, decreased enthusiasm, poor concentration, reduced appetite, ideas of hopelessness, helplessness is more common in IT-Professionals. The percentage of same symptoms in IT-Teachers is comparatively less.

IX. CONCLUSION

Beside the typical job characters of both professions, IT-Teachers face less stress than IT-Professionals. Both professions need similar educational qualification. But stress level is different. This is because of not having tight deadlines and long working hours. Due to the tight deadlines, IT-Professionals' stress increases. They do not get time to enjoy their high salary. They do not enjoy with their families. They have to work for long time which again increases their stress and tension.

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