

Exploring Job Satisfaction, Stress and Coping Strategies Employed by Engineering Faculty

Zoha A. Merchant¹, Shailaja Shastri²

¹Research Scholar, Jain University, Bangalore, India

²Professor and Head, Department of Post Graduate and Research Studies in Psychology, Jain University, Bangalore, India

Abstract: *The current study aims to “Explore Job Satisfaction, Stress and Coping Strategies employed by Engineering Faculty”. The sample consisted of 187 faculties from 7 engineering colleges affiliated to Visvesvaraya Technological University (VTU). Job satisfaction was assessed using Minnesota Satisfaction questionnaire by David et. al (1967). Stress is assessed by a stress checklist developed by the researcher under guidance and expertise of her guide. The coping strategies employed by faculty in engineering colleges were assessed using the COPE inventory developed by Carver et.al (1989). Descriptive statistics such as Mean and SD was used to understand the job satisfaction and coping dimensions for which faculty in engineering colleges have the highest and lowest scores. Percentage was used to understand the factors that are most stressful and least stressful for engineering faculty. Inferential statistics such as independent t-test and one-way ANOVA was used to understand whether job satisfaction, stress and coping strategies employed by engineering faculty differ with regard to the selected demographic variables. Results indicate that faculty in engineering colleges are most satisfied with the activity, social service and co-workers dimensions of job satisfaction, whereas they are least satisfied with the compensation, advancement and company policies and practices dimensions. There is no significant difference in job satisfaction related to gender and age of the faculty. However there is a significant difference in how the education qualification, years of experience, marital status and designation of the faculty is related to their job satisfaction. Engineering faculty experience the highest amount of stress on additional factors and the lowest amount of stress on psychological factors. There is no significant difference in stress experienced by engineering faculty with regard to their marital status and educational qualification. However there is a significant difference between how psychological, organisational, Inter-personal and additional factors of stress impact faculty with regard to their gender, age, years of experience and designation. The coping strategies most frequently adopted by engineering faculty are positive reinterpretation and growth, planning and active coping. The coping strategies that are not frequently adopted by engineering faculty are substance use, behavioural disengagement and denial. There is no significant difference in the coping strategies used by engineering faculty with regard to their marital status. However the coping strategies employed by faculty in engineering differ with regard to their gender, age, years of experience, educational qualification and designation. The current study gives us an insight into the challenges faced by faculty in engineering colleges and can further be used as a frame work to develop strategies to improve the quality of engineering education.*

Keywords: job satisfaction, stress, coping strategies, engineering faculty, demographic variables.

1. Introduction

The future success of Indian industry depends on the growth of quality engineering education in India. Engineering education in India has seen tremendous growth over the past decade, both in number of students and number of colleges. The number of graduates coming out of technical colleges increased to over 700,000 in 2011 from 550,000 in 2010 (Nandakumar 2011). The recent large scale expansions in engineering education have come at the cost of the quality of the educational offerings. Seventy five percent of technical graduates and more than 85% of general graduates are unemployable by India's high-growth global industries, including information technology and call centres (Anand 2011). Shortage of teachers coupled with the long time taken in filling faculty vacancies makes the contact load of teachers so high that they have no time for introducing innovation in the teaching/ learning process or to indulge in creative research and development activities. The situation is so bad that a recent McKinsey, N. report (2005) has mentioned that only 25-30% of engineering graduates in India are employable in the IT/ITES sector. However the growing demand of the economy has compelled the engineering industry to recruit even the low quality output from the education system and make up the deficiency in education and training through specialised training programs. The government is in a catch-22 situation where it must expand engineering education to meet anticipated

shortages and yet keep the output standards at a minimum acceptable level even when trained teachers are not readily available. Improvement of the quality of educational offerings would need concentrated effort on training of teachers (Biswas, G. et.al 2012).

Tippu, S. (2007) in her article “Academia discusses shortage of engineering teachers” suggests that Indian academics cite two main reasons for the gap between engineering students and teachers: a shortage of PhDs and rock-bottom university pay scales.

"The PhD pool we have to recruit from is very small," said Khincha, P. (2007), a professor of electrical engineering at the Indian Institute of Science, Bangalore and vice chancellor of Visveswaraya Technical University (VTU), which oversees 150 schools and more than 50,000 students in the state of Karnataka.(Tippu, S.2007)

"Moreover, the difference in the salary structure between academia and the industry is huge," Khincha, P. (2007) said. "The compensation packages to the faculty have not kept pace with the industry, leaving the faculty far behind."(Tippu, S. 2007)

The government has given permission to a number of promoters often those with political to set up colleges. In many cases, they build massive campuses, advertise

aggressively and admit students who are able to pay high fees, turning the institutions into great money-making machines. Since not much attention is given to studies and degrees are awarded on payment of money, faculty is also given short shrift. (Tippu, S. 2007)

"While the faculty is at least present on the campus in the Indian Institutes of Technology and other reputable schools, even with the severe teacher shortage, there are a few tier-three engineering schools where as much as 75 per cent of the stipulated faculty is completely absent," said one member of the All India Council for Technical Education. "Usually, when we go on inspection to provide accreditation to some local colleges, we see the same set of equipment and other classroom paraphernalia from school to school. And the same teachers we have seen in the other school are shown as being on the second school's rolls too. Good schools don't do this, but some in the regional areas, they do." (Tippu, S. 2007)

Some schools are using technology to close the student-teacher gap. "I strongly believe our colleges should use new technologies, such as the satellite education programmes offered through the Edusat," said K. Balaveera Reddy, a professor and the former vice chancellor of VTU. "For instance, VTU is able to get 130 colleges, about 13,000 students, to listen to one professor through our satellite programmes. I do admit that eye contact and one-to-one interaction between students and faculty are necessary, but when that is not possible, these kinds of programmes do help." (Tippu, S. 2007)

The government is also trying to address this issue by providing incentives for intensive training programmes for tutors, as well as by rising the retirement age from 58 to 62. Retired professors can teach until they reach the age of 70. (Tippu, S. 2007). Since teachers are one of the most important units in the educational system it becomes essential to study the various aspects that influence them. Teachers are the pillars of the society, they help students mature and shoulder the responsibility of taking their nation ahead. Dissatisfaction and stress among teachers is undesirable and dangerous. If factors responsible for dissatisfaction and stress can be recognised and the strategies teachers use to deal with stress identified, attempts can be made either to change those conditions or to reduce their intensity so as to increase the holding power of the profession.

2. Review of Literature

Studies indicate that job satisfaction and stress among teachers is dependent on several factors including the working environment in the institution, the policies of the organisation, pay and fringe benefits available for the teachers, advancement opportunities, the relationship of the faculty with the administrative staff, co-workers, students and their parents, and the feedback the faculty get from their seniors, co-workers and students. Teachers use a wide range of coping strategies to deal with stress but very few find effective ways to counter the negative effects of stress. However studies on job satisfaction, stress and coping strategies employed by engineering faculty are limited.

3. Objectives

- To understand the factors that impact job satisfaction among engineering teachers
- To understand the factors impacting stress among engineering teachers.
- To understand the different coping strategies used by engineering teachers to overcome stress.
- To understand the difference in job satisfaction, stress and coping strategies among engineering teachers with regard to selected demographic variables.

4. Research Design

The current study is an explorative study which has been undertaken to explore Job Satisfaction, Stress and Coping Strategies used by engineering teachers. No hypothesis have been included in the study as not many studies have been conducted on engineering faculty on the basis of which assumptions could be drawn.

5. Sampling

Purposive sampling technique was used to select Engineering colleges. A total of 187 teachers were selected for seven different colleges for the study. The table below shows the sample distribution:

6. Inclusion Criteria

- Colleges affiliated with Visvesvaraya Technological University (VTU) were included.
- All colleges had been established for more than 10 years.
- Teachers who voluntarily participated in the study were included.
- Colleges located within Bangalore city were included in the study

7. Exclusion Criteria

- Teachers with less than one year of experience were not included in the study.
- Colleges that are not affiliated with Visvesvaraya Technological University (VTU) were not included in the study.
- Colleges established for less than 10 years were not included in the study

8. Variables

- a. Independent variables
 1. Gender
 2. Age
 3. Years of experience
 4. Education qualification
 5. Marital status
 6. Designation
- b. Dependent variables
 1. Job satisfaction
 2. Stress
 3. Coping strategies

9. Operational Definitions

a. Gender

Gender is a scheme for classification of the individuals based on the biological differences as males and females. (Nayak, J. 2008).

b. Age

Age is the length of time a person has lived. The age of the respondents in completed years at the time of investigation was classified into following categories:

- 29 years and below
- 30 years– 36 years
- 37 years and above

c. Marital status:

Marital status is a demographic parameter indicating a person's status with respect to marriage, divorce, widowhood or singleness. Marital status of the respondent was classified into two categories as follows:

1. Unmarried: Being unmarried refers to never being married or being a widower
2. Married: Being married refers to having a husband or wife and living with them under one roof.

d. Educational qualification:

The academic qualification of the respondents was classified as below:

1. BE/ B.Tech: faculty who have completed their graduation and not registered for masters programme
2. M.E/ M.Tech: faculty who have completed their masters and not registered for a doctoral degree
3. Ph.D.: faculty who have completed their doctoral degree and not registered for post-doctoral degrees
4. Post Doctorate

e. Years of experience:

Experience level of the faculty was the total number of years they have worked as teachers and was classified as follows:

- a. 1-5 years
- b. 6-10 years
- c. 11 and above

f. Designation:

The position / the designation of the respondents held in the institution at the time of investigation. This was categorised as follows:

1. Lecturer
2. Assistant Professor
3. Associate Professor
4. Professor

g. Job Satisfaction:

“The pleasurable emotional state resulting from the perception of one's job as fulfilling or allowing the fulfilment of one's important job values” (Locke 1976)

h. Stress:

Stress, in particular, is the inability to cope with the pressures in a job (Rees, 1997), because of a poor fit between someone's abilities and his/her work requirements and conditions (Rytkönen, H. and Strandvik, 2005). It is a mental and physical condition which affects an individual's productivity, effectiveness, personal health and quality of work (Comish& Swindle, 1994, 26) (cited in Vokic, P. N., et.al. 2008).

i. Coping:

The cognitive and/or behavioural responses that individuals produce to manage threatening, stressing or generally demanding situations is defined “coping” (Carver, Scheier and Weintraub, 1989).

10. Assessment techniques

Data was collected with the prior permission of the Principal after which the teachers were contacted to get the response. Good rapport with teachers was established by giving an introduction about the objectives of the study, importance of their co-operation and their sincere responses before the distribution of the questionnaire. They were also informed that confidentiality of the information would be maintained strictly. The teachers were instructed very clearly about the pattern of answering the questionnaire. They were given enough time to answer all the statements

11. Tools

a. Minnesota Job Satisfaction Questionnaire:

The Minnesota Job Satisfaction Questionnaire (MSQ) has been developed by David J Weiss, Rene V Dawis, George W England, and Lloyd H Lofquist(1967). The long form MSQ consists of 100 items. Each item refers to a reinforcer in the work environment. The respondent indicates how satisfied he is with thereinforcer on his present job. Five response alternatives are presented for each item. Each long form MSQ scale consists of five items. The items appear in blocks of 20, with items constituting a given scale appearing at 20- item intervals. Following is the list of MSQ scales: Ability Utilization, Achievement, Activity, Advancement, Authority, Company Policies and Practices, Compensation, Co-Workers , Creativity, Independence, Moral Values, Recognition, Responsibility, Security, Social Services, Social Status, Supervision on Human relations, Supervision on Technical, Variety, Working conditions, General Satisfaction. All 100 responses from the twenty subscales were combined to obtain an overall job satisfaction score.

b. Stress check list

A stress check list was developed by the researcher to identify the factors causing stress among engineering teachers.

Pilot study

In order to achieve a better understanding of factors that cause stress among engineering faculty, a pilot study was conducted. A small sample of five teachers, working in an engineering college was randomly selected. The teachers were interviewed to understand the difficulties that they face

in their profession. The interview helped the researcher to understand the different factors that cause stress, which were later, included in the check list.

The check list consists on 67 items covering four main factors:

1. Psychological factors, which include personal and familial factors
2. Organisational factors, which include infrastructure, organisational policies, role definition and reward and feedback.
3. Inter-personal factors, which include factors related to colleagues, students and their wards
4. Additional sources, which include factors like commuting and noise levels.
5. Five response alternatives are present for each item: Always, Frequently, Sometimes, Rarely and Never.

c. COPE Inventory

The COPE Inventory was developed by Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989) to assess a broad range of coping responses, several of which had an explicit basis in theory. Five scales (of four items each) measure conceptually distinct aspects of problem- focused coping (active coping, planning, suppression of competing activities, restraint coping, seeking of instrumental social support); five scales measure aspects of what might be viewed as emotion- focused coping (seeking of emotional social support, positive reinterpretation, acceptance, denial, turning to religion); and three scales measure coping responses that arguably are less useful (focus on and venting of emotions, behavioural disengagement, mental disengagement) (Charles S. Carver 1989). The inventory includes some responses that are expected to be dysfunctional, as well as some that are expected to be functional. It also includes at least 2 pairs of polar-opposite tendencies. These were included because each scale is unipolar (the absence of this response does not imply the presence of its opposite), and because we think people engage in a wide range of coping during a given period, including both of each pair of opposites.

12. Data Analysis

The current study has used the following Statistics methods:

a. Descriptive Statistics.

Mean and Standard Deviation will be used in appropriate sections.

b. Inferential Statistics.

Independent t-test was used to analyse the difference in job satisfaction, stress and coping strategies with regard to demographic variables (gender)

One way ANOVA was used to analyse the difference in job satisfaction, stress and coping strategies with regard to demographic variables – age, marital status, education qualification, designation and years of service.

Results are presented in the next chapter.

13. Results

a. Job satisfaction

- Results indicate that faculty in engineering colleges are most satisfied with the activity, social service and co-workers dimensions of job satisfaction, whereas they are least satisfied with the compensation, advancement and company policies and practices dimensions.
- There is no significant difference in job satisfaction related to gender and age of the faculty.
- In case of years of experience, there is no significant difference on 20 subscale of job satisfaction; however scores for responsibility subscale of job satisfaction differ among the group.
- With regard to education qualification, there is no significant difference on 17 subscale of job satisfaction, however scores for achievement, authority company policies and procedures and supervision (human relation) subscales of job satisfaction differ among the group.
- In case of marital status the scores for 21 subscales of job satisfaction are not significant; however scores for moral values subscale of job satisfaction differ among the group.
- The scores for 12 sub scale of job satisfaction do not vary with regard to the designation of the faculty, however scores for advancement, company policies and practices, responsibility, security, supervision (human relation), supervision (technical), working conditions and general satisfaction are significant.

b. Stress

- Engineering faculty experience the highest amount of stress on additional factors and the lowest amount of stress on psychological factors.
- There is no significant difference in stress experienced by engineering faculty with regard to their marital status and educational qualification.
- However there is a significant difference between how additional factors causing stress impact faculty with different gender, age and years of experience.
- In the case of designation, there is a significant difference between how organisational factors impact faculty with different designations.

c. Coping

- The coping strategies most frequently adopted by engineering faculty are positive reinterpretation and growth, planning and active coping. The coping strategies that are not frequently adopted by engineering faculty are substance use, behavioural disengagement and denial.
- There is no significant difference in the coping strategies used by engineering faculty with regard to their marital status.
- However there is a significant difference in the use of religious coping between men and women.
- There is also a significant difference in the use of positive reinterpretation and growth, active coping and religious coping among faculty belonging to different age groups.
- Faculty with different experience levels differ significantly in the use of positive reinterpretation and growth, focus on and venting of emotions, use of instrumental social support, active coping and acceptance as coping strategies.

- With regard to their educational qualifications, faculty differ in the use of humour as a coping strategy.
- Faculty with different designations also differ in the use of positive reinterpretation and growth, religious coping, and humour as coping strategies.

14. Implications of the Study

- The current study has provided an insight into the challenges faced by faculty in engineering colleges. Using this study, several other interesting factors that influence the performance of faculty in engineering colleges can be identified. For instance the impact of low job satisfaction and high stress levels on the performance of teachers in engineering colleges can be studied.
- Studies conducted on engineering faculty in India are limited. Therefore, similar studies can be conducted using a larger sample size. Conducting a study using a larger sample size would enhance the reliability of the data, which can further be used by the All India Council of Technical Education to enhance the quality of engineering education in India. If sample size is large, the results can also be generalized.
- The current study is an attempt to understand job satisfaction and stress among engineering faculty. The data obtained from the study can be used to develop training, counseling and coaching model for faculty working in engineering colleges. Training the faculty to develop appropriate strategies to deal with stress and job dissatisfaction would help enhance the quality of teaching.
- Results provided in the current study can be used to conduct a comparative study. Job satisfaction, stress and coping strategies employed by engineering faculty can be compared with faculty belonging to other disciplines. This would help understand the challenges exclusively faced by engineering faculty. A comparative study will also help us know whether the factors effecting job satisfaction, stress and coping strategies employed by faculty vary with regard to the discipline they teach.
- The current study takes into consideration colleges affiliated to Visvesvaraya Technological University (VTU). Studies can be conducted on the challenges faced by faculty working in private engineering colleges. A comparative study on the challenges faced by faculty working in colleges affiliated to Visvesvaraya Technological University (VTU) and faculty working in private engineering colleges can also be conducted.
- Engineering education in India can be compared to that of other countries. This would help teachers train students to perform globally. A cross nation study would also allow us to compare teaching styles and methods, and help teachers improve in areas they are lacking behind. It would also provide information on technical advancements in teaching.

15. Limitations of the Study

- The current study is a purely quantitative study. Although as a part of the pilot study, the researcher attempted to understand the issues and challenges faced by faculty in engineering colleges. This helped the researcher to streamline the research design. An in-depth interview of selected

participants, after the data collection, would have helped immensely in better understanding of the context.

- The current study is exploratory. One of the main prerequisites of an exploratory study is having a large sample size. However the current study consists of a comparatively small sample size (N=187). Lack of time and busy schedules of teachers made it difficult to have a larger sample size. Using a larger sample size would help gain an in depth understanding of the problem faced by engineering faculty.
- One of the objectives of the current study is to understand job satisfaction, stress and coping strategies adopted by engineering faculty with regard to selected demographic variables. However senior faculty members were unwilling to participate in the study. This made it difficult to compare the challenges faced by faculty with regard to their age and experience level.
- The questionnaires used in the study were too long. Several faculty members complained about the length of the questionnaire. This was one of the reasons as to why senior faculty were unwilling to participate in the study. Long questionnaires made the participants hesitant in answering them. The responses could be given out of boredom or in rush; hence they would have lower levels of accuracy.

References

- [1] Ahuja, G. 2009. 'Are the professors at the IITs/IIMs underpaid. Retrieved on 2012-9-3 from <http://www.business-standard.com/india/storypage.php?autono=371658>.
- [2] Aktaruzzaman, et.al (2011). Job Satisfaction among Teachers of Technical Training Centers (T.T.Cs.) in Bangladesh. Volume 1, Issue 2, Academic Research International.
- [3] Al-Mohannadi, A. and Capel, S. (2007) Stress in physical education teachers in Qatar, *Social Psychology of Education*, 10 (1), 55-75.
- [4] Biswas, G., et.al (2010). Profile of Engineering Education in India- Status, Concerns and Recommendations. Published by N.K. Mehra for Narosa Publishing House Pvt. Ltd
- [5] Carver, C.S., et.al (1989). Assessing coping strategies: A theoretically based approach. *Journal of personality and social psychology*.
- [6] Dunham, J., &Varma, V. (1984). *Stress in teachers: past, present and future*. London: Whurr Publishers Ltd.
- [7] Eres, F., et.al (2011). Occupational Stress of Teachers: A Comparative Study Between Turkey and Macedonia
- [8] Fabricatore, A.N., Handal, P.J., &Fenzel L.M. (2000). Personal spirituality as a moderator of the relationship between stressors and subjective well-being. *Journal of Psychology and Theology*, 28(3), 221-228.
- [9] Levin, J. & Nolan, J. (2000). *Principles of classroom management*. Needham Heights: Allyn Books.
- [10] Lewis, R. (1999). *Teachers Coping with the Stress of Classroom Discipline*
- [11] Locke, E. A. (1976). The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), *Handbook of Industrial and Organizational Psychology* (pp. 1297-1349). Chicago, IL: Rand McNally
- [12] M, Ramya. (2012). Engineering teachers too need a few lessons

- [13] Madaan, N. (2008). Job Satisfaction among Doctors in a Tertiary Care Teaching Hospital
- [14] Malik, S., Ajmal, F. (2010). Levels, Causes and Coping Strategies of Stress during Teaching Practise. Journal of Law and Psychology, ISSN: 2078-1083
- [15] Maslow, A.H. (1968). Towards a psychology of being. New York: D. Van Nostrand Company
- [16] Nandakumar, Indu (2011). Number of teach graduates swells; salaries at IT firms stay stagnant. The Economic Times. Retrieved 2010-03-19
- [17] Nayak, J. (2008). Factors Influencing Stress and Coping Strategies among the Degree College Teachers of Dharwad City, Karnataka. University of Agricultural Sciences.
- [18] Rees, W. D. (1997), Managerial stress – dealing with the causes, not the symptoms, Industrial and Commercial Training, 29(2): 35-40.
- [19] Suryanarayana, N. and Luciana, M.Z. (2011). Teaching Competency and Teacher Job Satisfaction among Secondary School Teachers. Retrieved on 2012-7-17 from www.folkd.com/tag/secondary
- [20] Tippu, S. (2007). Academia discusses shortage of engineering teachers. Retrieved on 2012-9-12 from http://www.eetindia.co.in/ART_8800494540_1800000_NT_7e54753a.HTM
- [21] Vokic, P. N., et.al (2008). Individual Differences and Occupational Stress Perceived: A Vol.1 No. 1

Author Profile

Zoha Merchant completed M. Sc in psychology from CMR Institute of Management Studies. Pursuing M. Phil from Jain University and working as a therapist for autistic children.

Dr. Shailaja Shastri is a Professor and head, department of post graduate and research studies in psychology at Jain University