

To Curtail the Academic Stress of Engineering Faculty and to Develop Suitable Strategies by Way of Understanding their Expectations and Demands

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Abstract

Objective: Teachers especially working in Engineering Institutions are under a great deal of stress related to various academic stressors. Academic stressors contribute to organizational inefficiency, high faculty turn over, absenteeism due to ill health, decreased quality and quantity of practice, increased cost of health care, and decreased academic satisfaction and at last it will end up with professional burnout. **Aim:** The purpose of the present study is to investigate the academic stress and to reduce the impact of the academic stress by fulfilling the expectations of the faculties and their requirements at three different levels viz., Central, State, and Private engineering institutions. **Methods:** The locale of the study is Chennai in Tamil Nadu. The present research is exploratory in nature and was carried out on 53 engineering institutions located in Chennai and data were collected with a sample size of 62 faculties on judgmental and convenience sampling methods. **Statistical Analysis:** Self-administered questionnaires were used for collecting the data from the faculty of various Engineering Institutions. The factor listed, was identified using factor analysis from the faculties' questionnaire. The pair wise variations analysis for the opinion of the faculty members of different categories of Engineering Institutions was arrived. The correlation analysis indicates that the option of the faculty members of engineering Institutions with respect to the importance level of different attributes were quiet similar. **Findings:** The successful maintenance of engineering institution is based on by fulfilling the needy expectations of the Faculties. There was a significant positive correlation between the faculty members of central and state engineering institutions. The study suggested that engineering institutions must align themselves to a strategy to deliver as per the main stakeholders expectations, where the stakeholder's academic stress will be reduced to minimum and increases productivity. **Application:** The analysis of similarity and differences in expectations of the Engineering faculties of three different categories of Engineering Institutions provided valuable insights for improving the quality of exchange, value addition, and level of satisfaction through the reduction of academic stress of the faculties that would help in formulating a positive image in the minds of the students, parents, management and other governing bodies of the institutions.

Keywords: Academic Stress, Benefits, Demands, Expectations, Strategies

1. Introduction

Academic staff members are always under constant pressure for meeting daily activities, resultantly they suffer from work conflict, work ambiguity, work load, resource constraints and role conflict. Apart from work place stressors, the academic staff is also subject to social

stressors while interacting with colleagues, students and parents. Therefore it is proven that University teaching is a stressful profession. Academic Stress has devastating effects on the work performance of teaching staff. In such a situation, the proper positioning and development of right strategies for Engineering Education are must. It would be possible to create right strategies for

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engineering faculties by understanding their academic expectations.

The expectations of the students and their parents are quiet high in private Engineering colleges. This in turn results in the demand for better performance from the faculty in private Engineering colleges as compared to those of Government Engineering colleges. Keeping the competition in view, the management demands good results from the faculty members and also their workload is much more than the faculty members of the government colleges. This pressure of high performance on the faculty members creates more stress which leads to reduced teaching efficiency. Despite the growth of Engineering education in Chennai has lost its steam due to decrease in demand. Many Engineering Institutions are struggling to fill their seats and find quality students. Some have even closed down due to the lack of students.

The job for engineering graduates are declining, the Return on Investment has also declined with increasing fee amounts and decreasing salary packages¹. The conceptual frame work proposed² for the study of reputation of Engineering Institutions have to concentrate on three different variables, that is, predictor variables (the quality dimensions), mediating variables (student, parents and faculty's expectations) and moderating variables (third party judgments). With the changing economy, technology, workplace environment, the Engineering Education is facing substantial challenges in matching the requirements of corporate and in competing with various other engineering education providers^{3,4}.

The popularity of rankings and accreditations acquired by Engineering Institutions are also the indicators for achieving their desired image. Thus, to understand the need for the marketing and activities that help in creating a valuable brand image among different stakeholders including faculty are of prime importance in the present context⁵.

It is mandate for an Engineering Institution to maintain its brand image so that the students, faculty members, and other stakeholders will aspire to become a part of it. Academic stress will be emerged either from the students or from the faculty if their desire has not been fulfilled and the expectations of the faculty members have not been regarded, which leads to burnout. This research aims to identify the important parameters by understanding the expectations of faculty members associated with Engineering Institutions. Central Government Engineering Institutions, State Government Engineering

Institutions and Private Engineering Institutions affiliated with Anna University.

Hence, it is important to understand the expectations of faculty of various departments and develop the strategies and tactics that would help in differentiating and adding value to the faculty of engineering discipline. Value creation in relationship with faculty makes it important to explicitly explore the expectations of faculty of three different Engineering Institutions (as mentioned above). The findings and suggestions presented in this study will help the top management in understanding the expectations of faculty Engineering education.

2. Objectives of the Study

- To understand the important expectations of the faculty of various Engineering Institutions.
- To compare the stakeholders' opinions (faculty) across different Engineering Institutions to formulate the suitable strategies to be adopted in due course.

3. Methodology

Nature of research: The present research is exploratory in nature and aimed at understanding the expectations of the major stakeholders, that is, faculty members of Engineering Education operating at central, state and private engineering institutions and can develop the strategies aligned with the important expectations to achieve the pre desired image. The study was conducted by collecting data from 53 different Engineering Institutions located in and around Chennai during the period from October 2015 to January 2016.

The three different categories of engineering institutions are as follows:

Central Government Engineering Institutions CIPET (central institute of plastic engineering and technology) and **IIT Madras:** This category consists of Engineering Institutions having the image of prestigious engineering institutions of India which are trying to compete at the international level. Rank wise, these engineering institutions are ranked in the top 30 engineering institutions in India.

State Government Engineering Institutions: This category consists of Engineering Institutions having a strong regional brand image and are ones which are trying to achieve a prestigious position at the regional level. Rank wise, these engineering institutions are beyond the all India ranking levels.

Private Engineering Institutions affiliated with Anna University: This category consists of Engineering Institutions mainly operating at the local level and trying to establish themselves as good regional players. Rank wise, these engineering institutions have no ranking or rarely ranked at the bottom level.

4. Research Design

The survey method using questionnaires was to ascertain the expectations of the engineering faculty. A Likert-type rating scale was used with a 5 point scale, 1 being “Not at all important” to 5 being “Extremely important”. Fifty three important Engineering Institutions belonging to three different categories discussed above were considered for the present study.

5. Sampling Method and Sample Size

Non-probability sampling procedures were mainly used for the study 62 faculty were selected on judgmental sampling and convenience sampling method from the three different categories of engineering institutions.

6. Data Collection

Self-administered questionnaires were used for collecting the data from the faculty who are the stakeholders of various Engineering Institution. The questionnaires had one open end question to explore any other expectations the respondent may have. The questionnaires were tested for their reliability using Cronbach’s alpha, and its value came 0.861. The questionnaires were validated through

the expert opinions and their suggestions were taken care off and modifications were done after receiving the feedback. The factor listed in Table 1 was identified using factor analysis from the faculties’ questionnaire. The mean value was calculated for each factor using the ratings of its parameters for the faculty member’s expectations and then inter-factor correlations were examined to check the validity. It was observed that the inter factor correlations were not high for the faculty’s questionnaire. The study mainly used ranking of parameters using the mean of the ratings given by the faculty and it did not use the higher level statistical analysis considering the non-parametric measurement scale⁶.

7. Analysis and Results

The image and branding of the various Engineering Institution is dependent on the level of satisfaction of various stakeholders, particularly the concerned faculty. The responses were analyzed to understand the differences and similarities in the opinions of faculty belonging to the different categories of engineering institutions. As the scale used was best explained as ordinal data⁷ the analysis was done considering the non-parametric statistical tests.

8. Faculty Members

The number of faculty members from Central Government Engineering Institutions, State Government Engineering Institutions and Private Engineering Institutions affiliated with Anna University were 17, 19 and 26 respectively with a total of 62% male and 38% female faculty members. In the Central Government Engineering Institutions 71% of faculty members possessed Doctorate degree, while in the State Government Engineering Institutions and Private

Table 1. Inter-factor correlation analysis of faculties’ questionnaire

Description	Fair policy and Good governance	Quality and reputation	Placement	Support and recognition	Research opportunities	Confidence in leadership
Fair policy and Good governance	1					
Quality and reputation	.589**	1				
Placement	.301*	.313*	1			
Support and recognition	.454**	.376*	.507**	1		
Research opportunities	.079	.008	.005	.169	1	
Confidence in leadership	.487**	.479**	.374*	.429**	-.163	1

** Correlation is significant @ 0.01 levels (2-tailed) * Correlation is significant @ 0.05 levels (2-tailed).

Engineering Institutions affiliated with Anna University, the number of faculty members possessing Doctorate degree was only 49.5% and 17.9% respectively.

The pair wise variations analysis for the opinion of the faculty members of different categories of Engineering Institutions are as follows. The Table 2, 3 and 4 only show out of the 22 attributes of the questionnaire which are having the variations significant at the 0.01 or 0.05 levels. The Faculty members of Central Government Engineering Institutions had difference of opinion with Faculty members of Government Engineering Institutions and Private Engineering Institutions on three and four different attributes respectively (significant at the 0.05 level of significance). The Faculty members of State Government Engineering Institutions and Private Engineering Institutions had difference of opinion with respect to only two attributes.

The correlation analysis indicates that the option of the faculty members of Central Government Engineering Institutions and State Government Engineering Institutions with respect to the importance level of different attributes were quiet similar. On the other hand, the similarity between opinions of faculty Members of Private Engineering Institutions and Central Government

Engineering Institutions or State Government Engineering Institutions are not significant at the 0.01 Level of significance.

On analyzing the importance level of different attributes it was observed that the Faculty members of Central Government Engineering Institutions looked for more freedom and Autonomy to work, while faculty Members State Government Engineering Institutions and Private Engineering institutions looked for career development and healthy relationship with colleagues, Administration and other staff members, in the same order of importance. The faculty members Central and state Government, Engineering Institutions had ties in opinions. The attributes were given the same rank if the mean and standard deviation obtained were the same.

9. Discussion

The successful maintenance of engineering institution is based on by fulfilling the needy expectations of the Faculties. The satisfied faculty will render his noble service for the successful run of his engineering institution without any academic stress. This kind of positive attitude builds the Strong image in the minds of the other

Table 2. Mann-Whitney U test statistics for central and state government engineering institutions

Attributes Description	Mann Rank		Mann Whitney U	Asymp -Sig. (2-tailed)
	Central	State		
Career development and Growth opportunities	11.15	18.89	53.00	.008*
Facilities of physical work place	12.67	18.58	62.00	.044*
Policy of sharing Revenue/Profits For bringing and conducting MDPs Consultancy etc.	12.63	18.35	69.00	.053*

* Variation is significant @ 0.05 levels.

Table 3. Mann-Whitney U test statistics for central and private category engineering institutions

Attributes Description	Mann Rank		Mann Whitney U	Asymp -Sig. (2-tailed)
	Central	Private		
Autonomy or degree of freedom	21.87	12.71	53.00	.004**
Facilities of physical work place	19.89	14.01	78.00	.035*
Participation in decision making	12.50	19.70	71.00	.017*
Quality of placements	12.14	19.89	65.70	.013*

** Variation is significant @ 0.01 levels.

** Variation is significant @ 0.05 levels.

stakeholders such as parents, students, management and other members of the Governing council. If there is any academic stress prevails, the faculty knows the ways and means to curtail the academic stress and concentrate his regular Academic routines because of his satisfied mind. The Figure 1 in bracket against each parameter shows the ranking of it in the sequence of Central Government Engineering Institutions, State Government Engineering Institutions and Private Engineering Institutions.

9.1 Expectations of the Faculty Members and Other Important Parameters to Avoid for the Reduction of Academics Stress

The Faculty Members of the Central Government Engineering Institutions had some expectations like sup-

port and opportunity for research work, receiving financial support for academic and Research work, teaching load and Research work, Support and co-operative of relations among faculty, Fairness of management issues and accountability, Teaching resources availability, Clarity for the tenure and promotional process, Autonomy of degree of freedom in operation, and Fairness of compensation and benefits. As it is being the central Government aided Institutions, most of the expectations of the Faculty has already been saturated. Members of Private. Engineering Institutions gave least importance to autonomy and freedom at work and to have quality students in their institutes. The Faculty Members of State Government Engineering Institutions and Private Engineering Institutions looked for Career development and growth, teaching resources, Pay Commission salaries and so forth.

The duties and responsibilities in placement activities of their students was on the lower side for Faculty Members of Central Government Engineering Institutions, and State Government Engineering Institutions but the same was very important for the faculty of Private Engineering Institutions. The other expectations mentioned by the faculty members were the need of teaching and Research assistance, student’s feedback system for improvement in the quality of teaching, and the need for improvement in the overall work environment. The faculty of Private Engineering Institutions showed their desire to promote research work discipline.

Table 4. Mann-Whitney U test statistics for state and private category engineering institutions

Attributes Description	Mann Rank		Mann Whitney U	Asymp -Sig. (2-tailed)
	State	Private		
Balance between teaching and research	21.96	13.87	76.00	.013*
Recognition for outstanding work	20.85	14.00	89.00	.044*

*Variation is significant @ 0.05 levels.

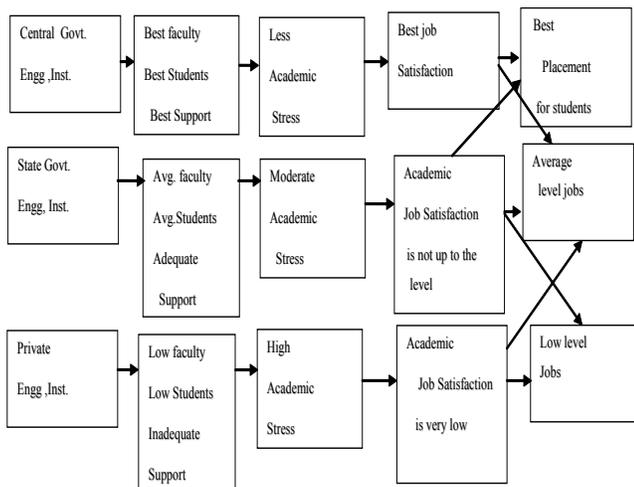


Figure 1. Aligning the strategies of engineering institutions with faculties’ expectations.

Table 6 represents a better exposure of the importance and preferences of different categories of Engineering Institutions. It will help in taking decisions regarding allocating resources for higher return of academic efficiencies from the faculties without creating any stress. Across the three categories, the Central and State Government Institutions has to give their top most priority in “good placement support and opportunities”. The support and co-operation and other human relations are lacking among the faculties in central and Private Engineering Institutions. MDPs and FDPs will help in long way to have clear transparency and clarity in exchange the views and ideas of faculties for the promotion of the students and other related Academic routines.

10. Implications

The analysis of similarity and differences in expectations of the Engineering faculties of three different categories of Engineering Institutions provided valuable insights for

Table 5. Correlation among the opinions of faculty members of different categories of engineering institutions

			Central	State	Private
Spearman's rho	Central	correlation Coefficient	1.000		
		Sig... (2-tailed)			
	State	correlation Coefficient	.591	1.000	
		Sig... (2-tailed)	.004		
	Private	correlation Coefficient	.191	.276	1.000
		Sig... (2-tailed)	.369	.220	

(** Correlation is significant @ 0.01 levels (2-tailed)

improving the quality of exchange, value addition, and level of satisfaction through the reduction of academic stress of the faculties that would help in formulating a positive image in the minds of the students, parents, management and other governing bodies of the institutions. (as shown below).

Major issue with Engineering Institutions is aligning their strategies and limited resources' considering their goals and vision⁸. The results of this study can be utilized by the said institutions for evaluating their goals and modifying their strategies based on assessment of faculty's expectations which curtails the emergence of academic stress. The State Government/Private engineering institutions can focus on the expectations of its current faculties⁹ and direct its resources as per the priority of its faculties. This will help it in identifying and minimizing the present academic stress gaps. The private Engineering

Table 6. Ranking of various attributes (with importance-mean-rating) by the faculty members of different categories of engineering institutions

Sl. No.	Description	Central			State			Private		
		Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD
1	Autonomy of degree of freedom in operation	5	4.46	.503	12	4.22	.913	18	3.70	.980
2	Financial Support for academic works.	5	4.46	.503	11	4.23	.685	8	4.16	.676
3	Fairness of compensation and benefits	6	4.44.	.855	3	4.78	.522	16	3.87	.877
4	Quality of students.	8	4.26	.767	9	4.31	.691	12	4.00	.698
5	Support and opportunity for research work	1	4.76	.762	7	4.44	.561	1	4.71	.707
6	Balance between teaching load and research work.	1	4.76	.762	1	4.89	.771	16	3.87	.585
7	Clarity for the tenure and promotional process	4	4.56	.996	4	4.76	.665	15	3.92	.743
8	UGC or AICTE norms salary.	7	4.42	.777	2	4.87	.634	6	4.26	.676
9	Transparency and clarity in internal communication	7	4.42	.777	10	4.26	.687	4	4.44	.866
10	Support and co-operative of relations among faculty	2	4.64	.989	14	3.96	.988	3	4.63	.696
11	Fairness of management issues and accountability	2	4.64	.989	17	3.87	.598	10	4.12	.676
12	Teaching Resources availability.	3	4.64	1.03	8	4.41	.917	9	4.13	.589
13	Appreciation of out- standing works	9	4.08	1.03	6	4.65	.543	11	4.00	.863
14	Reputation of the Institution	10	4.02	.789	13	3.98	.620	13	3.98	.785
15	Career devpand growth Facility	11	3.97	.771	5	4.74	.503	2	4.64	.696

(Continued)

16	Cooperation among the work groups of the institution	12	3.91	1.079	18	3.81	1.04	7	4.23	.593
17	Confidence in senior Leadership	13	3.87	1.46	17	3.87	.689	17	3.79	.791
18	Infrastructure facilities.	14	3.87	.648	19	3.74	.954	14	3.98	.786
19	Facilities with respect to physical work place	14	3.87	.648	14	3.96	.776	19	3.68	.707
20	Sharing of revenues earned through MDPS, Fdps etc	16	3.41	1.878	16	3.88	.727	17	3.79	.21
21	Qualities' of Placements.	15	3.48	1.331	15	3.92	.845	5	4.28	.727
22	Participation in Governance and decision making.	17	2.67	1.164	20	3.11	.936	20	3.32	.688

Institutions can plan strategies for achieving the Central Govt. Engineering institutions level status and quality in the future by understanding the needs of the faculties.

10.1 Limitations of this Study

This research has been taken in Chennai, which is the congenial city for approaches and contacts of the faculties. This study is confined to the opinions taken from the faculties of engineering institutions of various categories located in Chennai city only. The responses of the faculties might have the influence of particular advanced culture of this city, thinking and the influence of their Management. This research is very much useful and to analyze the strategies practiced by various engineering institutions of different categories to understand and to compare the expectations of different faculties. This study has been conducted from the perspective of the faculties, but the motives of the students, parents and the vision of the Management are the deciding factors to brand the engineering institution. Separate research is required to explore the expectations of the stakeholders (students, parents, faculties, Government agencies and the top Management.

10.2 Scope for Further Research

There is a need and opportunity to further explore the expectations of the faculties and undertake studies in the following areas 1. Undertake further studies considering other members, such as, alumni, aspirants, employees, society, the government, and other well-wishers of the Institutions¹⁰. 2. Studies can be conducted in the future by considering Engineering institutions located in other parts of Tamil Nadu. 3. Research may be conducted for

understanding the expectations of the owners of the private organizations. 4. Although the proposed model was created for the engineering institutions, the study can also be extended for other professional educational institutions,

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