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Job Characteristics of Teachers in Technical Educational Institutions in Telangana Region

Gowthami Chinthala and Hanumantha Rao

Abstract

In view of the tremendous growth in number of technical educational institutions and intake of students, there is an imperative need to understand the process of management of these institutions. In recent past regulating agencies and stake holders in the society has been expressing their anguish on the way these institutions were administered. There was criticism that faculty and student ratio was not maintained by majority of technical educational institutions in India. Few reports highlighted that the teachers in these institutions are not retained for long period and most of the teachers were under paid. Further, the general view of the society is that the teachers are not motivated and most of them are dissatisfied at work. The literature reviewed provides a piecemeal account of various dimensions of job characteristics and job satisfaction. In this view the focus of the present study is to identify important job characteristics of teachers in technical educational institutions in Telangana and to study the job characteristics and examine the relationship between the job characteristics and job satisfaction among teachers in technical educational institutions in Telangana.

***Key Words**: Job Characteristics, Job Satisfaction, Workload, Uncertainty, Work Environment.*

INTRODUCTION

Job characteristics include all those aspects of job which are associated with the dimensions of the job situation. Jobs are the means by which an employee is linked to the organization. The job may be the major determinant of characteristics such as the amount and types of rewards available to the job holder, degree of intrinsic motivation associated with the task to perform, role related duties on the job and nature of inter-personal relations which are the result of the job situation. In other words, more specifically these job characteristics may be (a) related to the economic and non-economic rewards that are associated with job e.g., pay, security, etc., and (b) related to the social relations, e.g., social contact, peer relations and relationship with superiors.

Dr. Gowthami Chinthala
Assistant Professor
ITM Business School, Hunter Road
Warangal, Telangana
drgowthamich@gmail.com

Dr. Hanumantha Rao
Professor
University College of Commerce
and Business Management
Kakatiya University, Warangal, Telangana

Many studies showed that characteristics of the job are primary determinants of work outcomes. It is generally accepted that the way a job is designed has an impact upon the attitudes, beliefs and feelings of the employee. Some studies noted that job factors are important for job satisfaction, while other studies stressed that the dispositional factors are the main determinant of job satisfaction. Relationship between the characteristics of jobs and employee's attitudes is a continuing concern of researchers. Several common dimensions of job satisfaction and job characteristics have emerged in several studies.

REVIEW OF LITERATURE

Hackman and Oldham suggested that jobs differ in the extent to which they involve five core dimensions: skill variety, task identity, task significance, autonomy and task feedback. They further suggested that if jobs are designed in a way that increases the presence of these core characteristics, three critical psychological states can occur in employees: (1) experienced meaningfulness of work, (2) experienced responsibility for work outcomes and (3) knowledge of the results of work activities. Hackman and Oldham believed that when these critical psychological states are experienced, work motivation and job satisfaction will be high. **Strauss** summarized the extensive literature and listed the job factors influencing satisfaction in the order of importance- job security, opportunities for advancement, company and management, wages, intrinsic work and extrinsic work. **Yagil** discovered that job characteristics have great influence on employees' behavior, compared to other predictors.

Hackman and Lawler empirically tested the relationship among the job characteristics, individual differences in need strength and employee's motivation, satisfaction, performance and absenteeism. The results indicated that positive relationship was found among job dimensions and dependent measures such as motivation, satisfaction, performance and attendance. **Hackman and Oldham** theory of inherent work task characteristics identifies task significance as a core job characteristic that contributes to motivation and performance. The desire for high level of productivity becomes greater when the outcomes of a particular effort are deemed highly important and even more important if the outcome significantly impacts others. When a task is significant its outcome affects not only the individual, but also others within their department or even outside of the organization.

Rousseau in the study of job characteristics, job satisfaction and motivation found that there were substantial positive relation between the job characteristics and satisfaction. The job characteristics of variety and task significance were found to be particularly important to employee satisfaction and motivation. **Voydanoff** examined the relationship between perceived job characteristics and overall job satisfaction among the male and female employees. The results revealed similar patterns of relationships between perceived job characteristics and job satisfaction for men and women indicating that they require similar job characteristics to be satisfied with their jobs. **Caldwell and O'Reilly III** in the study of task perception and job satisfaction found that the job satisfaction is strongly related to perceived task characteristics. **Lee, McCabe and Graham** supported the predictions derived from Hackman and Oldham's model as job characteristics were more important for feelings of intrinsic job satisfaction.

Anderson examined the same variables and reported similar findings that job autonomy, task identity, and feedback affect employee's job satisfaction. The study also indicated that autonomy and feedback are related to task performance, but not other dimensions of job characteristics. It is also important to note that this study indicated no relationship between job characteristics and absenteeism but mentioned that emphasis must be laid on the job design aspects, particularly autonomy and feedback, in promoting positive job attitudes, such as commitment and satisfaction among employees.

Head and Sorensen found that individual core job dimensions were positively associated with general satisfaction. Skill variety and autonomy demonstrated the most consistent and strongest relationship. The results confirmed the prediction of the Job Characteristic Model and found that an individual core job dimension has different effectiveness on job satisfaction. **Glisson and Durick** reported that employee characteristics predict commitment but play no role in predicting satisfaction and emphasized on job characteristics as determinants of job satisfaction.

Kacmar and Ferris demonstrated a U shaped curvilinear association between age and job satisfaction which characterize the form of relationship of the job satisfaction measures. **Dodd and Ganster** studied the interactive effect of job characteristics on job satisfaction. They found that in a high skill variety job and increased autonomy led to increased satisfaction. **Jansen et al** studied job characteristics and job satisfaction and found that both job characteristics and individual characteristics are related to job satisfaction. The study also found that the job satisfaction is affected to a greater extent by job characteristics. **Ting** study shows that job characteristics such as salary, promotional opportunity, task clarity and significance, skills utilization, organizational characteristics such as commitment and relationship with supervisors and co-workers have significant affects on job satisfaction. **Sanker and Wee** study on job characteristics and job satisfaction reported that job characteristics influenced job. **Pollack, Whit bred and Contractor** found that individual's job satisfaction can be significantly predicted by the characteristics of the job.

OBJECTIVES OF THE STUDY

The main objective of the study is to identify important job characteristics of teachers in technical educational institutions in Telangana. Also to study the job characteristics and examine the relationship between the job characteristics and job satisfaction among teachers in technical educational institutions in Telangana.

METHODOLOGY

The study is based mainly on primary data. The secondary data is used to supplement the primary data. The main sources of primary data are teachers of select technical educational institutions in Telangana. The secondary data was gathered from the annual reports, records and documents of technical educational institutions in Telangana and various regulating bodies in Telangana and India such as AICTE and TSCHE, Hyderabad.

Techniques of Data Collection

For the purpose of collecting primary data from the teachers of select technical educational institutions in Telangana, a structured questionnaire is designed and administered on sample respondents. Apart from questionnaire method, observation techniques is adopted to elicit adequate information from the teacher-respondents.

Sample Design

For the purpose of selecting the sample of teachers in select technical educational institutions in Telangana multi-stage purposive sampling method is used. Three districts in Telangana offering technical education such as Khammam, Karimnagar and Warangal are selected. Fifteen technical educational institutions in each of three fields of study i.e management, engineering and technology and pharmaceutical sciences are selected from these three districts. Therefore, at the second stage, forty five technical educational institutions are selected from three districts of Telangana. At the third stage, the sample of respondents are selected from different categories of teachers. while selecting respondents due representation is given to different categories of teachers such as Professors, Associate Professors and Assistant Professors. On this basis, total sample of 300 teacher – respondents are selected from the technical educational institutions in Telangana.

Job Characteristics- Comparison of Mean of the Sample Respondents with hypothesized Population Mean

With a view to compare the perception of teacher-respondents on job characteristics in technical educational institutions in Telangana with the population, the mean of sample for every variable of job characteristics is computed. The response categories of Likert type of scale include strongly agree, agree, neither agree nor disagree, disagree and strongly disagree. These response categories are imputed with numerical value as 5, 4, 3, 2 and 1 respectively. Hence, the mid value 3 is treated as hypothesized population mean. Based on the assumption mentioned, the data collected from teacher-respondents is subjected to statistical analysis to compute one sample t-value with the help of SPSS software. The computed t-value along with p-value for each variable of job characteristics is presented in Table-1.

With a view to understand whether the sample mean is different from population mean, Ho stated there is no statistical difference between mean of sample with the mean of population. In the opinion of the teachers from Management, Engineering and Technology and Pharmaceutical Sciences on the variable time spend on solving problems, the computed t-value is -1.002 with p value of 0.317, where α= 0.05. As the p-value is greater than α= 0.05 the Ho is accepted. Hence it can be stated that the opinion of the select teachers in Management, Engineering and Technology and Pharmaceutical Sciences in select technical educational institutions is not statistically different from the opinion of teachers of technical educational institutions in Telangana.

Except for the above statement all the other statement has the p value less than the á value where α = 0.05. Hence it can be stated that Ho is rejected for all the statements where the p value is less than the α implying that the opinion of the select teachers in Management, Engineering and Technology and Pharmaceutical Sciences in select technical educational institutions is statistically different from the opinion of teachers of technical educational institutions in Telangana.

In order to understand the perception of teachers in technical educational institutions in Telangana, the variables which explains the job characteristics are subjected to statistical analysis and the results are presented in the Table 2.

Data presented in the Table-2 explains the value of mean, standard deviation and the sample size of each variable. The mean value relating to the job characteristics varies between 2.19 and 4.21 and standard deviation varies between 1.07 and 1.30. The item wise analysis revealed that out of 16 variables, 10 variables have the mean value greater than 3 (Hypothesized population mean).

Further, the data presented in the Table-2 reveals that in the opinion of the teacher-respondents with respect to variables such as certainty of duties and responsibilities, mastering of required job skills and utilization of skills and competencies have highest mean value implying that majority of teacher – respondents have viewed these statements as important dimensions of job characteristics. Standard deviation as a measure to explain the variability in the opinion of teacher-respondents revealed that teacher – respondents have least variation in the opinion on the variables such as conflicting demands on the job, mastering of required job skills and working environment.

Job Characteristics–Results of Factor Analysis

Factor analysis allows to investigate the concepts that are not easily measured directly by collapsing a large number of variables into a few interpretable underlying factors. In every factor analysis there are same number of factors as there are variables. Each factor capture a certain amount of the overall variance in the observed variable and the factors are always listed in order of how much variation they explain. Having analyzed the multiple variables affecting the job of teachers of technical educational institutions in Telangana, it is proposed to determine few variables that can be used to better understand the job characteristic through Factor Analysis using statistical software - **SPSS-20** as multiple observed variables have similar pattern of

Table 1: Computed t-value along with p-value for each variable of Job Characteristics

One-Sample Test								
Sl.No.	Variables	Test Value = 3						Null Hypothesis
		T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference		
						Lower	Upper	
1.	Certainty of duties and responsibilities	18.117	299	.000	1.213	1.08	1.35	Reject H0
2.	Availability of resources	3.084	299	.002	.227	.08	.37	Reject H0
3.	Mastering of required job skills	16.979	299	.000	1.063	.94	1.19	Reject H0
4.	Existence of conflict in the organization	9.105	299	.000	.660	.2	.80	Reject H0
5.	Conflict between family and the demands of my job	-10.027	299	.000	-.737	-.88	-.59	Reject H0
6.	Competition in the job	4.411	299	.000	.327	.18	.47	Reject H0
7.	Workload in the job	-2.700	299	.007	-.203	-.35	-.06	Reject H0
8.	Clarity about duties	7.411	299	.000	.530	.39	.67	Reject H0
9.	Nature of the job	-11.058	299	.000	-.710	-.84	-.58	Reject H0
10	Conflicting demands on the job	-11.075	299	.000	-.690	-.81	-.57	Reject H0
11.	Time out from the job	2.248	299	.025	.160	.02	.30	Reject H0
12.	Utilization of skills and competencies	10.022	299	.000	.663	.53	.79	Reject H0
13.	Time spend on solving problems	-1.002	299	.317	-.070	-.21	.07	Accept H0
14.	Working Environment	-13.029	299	.000	-.813	-.94	-.69	Reject H0
15.	Congruence of values	6.803	299	.000	.453	.32	.58	Reject H0
16.	Creativity in the Job	2.418	299	.016	.173	.03	.31	Reject H0

Source: Compiled from field work

responses because they are also associated with a latent variable.

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy/Bartlett's Test of Sphercity

Prior to the extraction of the factors, several tests should be used to assess the suitability of the respondent data for factor analysis. These tests include Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. The KMO index, in particular, is recommended when the cases to variable ratio are less than 1:5. The KMO index ranges from 0 to 1, with 0.50 considered suitable for factor analysis by Kaiser. According to Hutcheson and Sofroniou the Bartlett's Test of Sphericity should be significant ($p<.05$) for factor analysis. Kaiser states a minimum value of 0.5 as a measure of sampling adequacy and any value between 0.5 and 0.7 as mediocre, values between 0.7 and 0.8 as good, values between 0.8 and 0.9 as great and values greater than 0.9 as superb.

In order to understand the suitability of data for factor analysis, the data is subjected to Kaiser-Meyer-Olkin (KMO) Measure of

Table 2: Mean and Standard Deviation of Variables

Sl. No.	Variables	Mean	Standard Deviation	Sample Size
1.	Certainty of duties and responsibilities	4.21	1.160	300
2.	Availability of resources	3.23	1.273	300
3.	Mastering of required job skills	4.06	1.085	300
4.	Existence of conflict in the organization	3.66	1.256	300
5.	Conflict between family and the demands of my job	2.26	1.273	300
6.	Competition in the job	3.33	1.283	300
7.	Workload in the job	2.80	1.304	300
8.	Clarity about duties	3.53	1.239	300
9.	Nature of the job	2.29	1.112	300
10	Conflicting demands on the job	2.31	1.079	300
11.	Time out from the job	3.16	1.233	300
12.	Utilization of skills and competencies	3.66	1.146	300
13.	Time spend on solving problems	2.93	1.210	300
14.	Working Environment	2.19	1.081	300
15.	Congruence of values	3.45	1.154	300
16.	Creativity in the job	3.17	1.242	300

Source: Compiled from field work

Sampling Adequacy and Bartlett's Test of Sphericity using SPSS-20. The results of these two tests are presented in Table-3

It can be observed from the data presented in Table-3 that KMO value is 0.839 and the Sig. value of Bartlett's test is (p .000) where p value is less than ((p .000)<(0.05)) which indicates that the sample data is fit for applying Factor Analysis test.

Table 3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.839
Bartlett's Test of Sphericity	Approx. Chi-Square	1316.334
	Df	120
	Sig.	.000

Source: Compiled from field work

Extraction of Factors

There are numerous ways to extract factors including Principal Components Analysis. The extraction methods commonly used in factor analysis are Principal Components Analysis (PCA) and Principal Axis factoring (PAF). PCA is the default method in many statistical programs, and thus, is used in extracting factors. Cumulative Percentage of Variance is another criteria to extract the factors. In

humanities, the explained variance need to be > 50 per cent. In order to extract the components, the data consisting of 16 variables of job characteristics is subjected to analysis and from the output generated selective information in the form of **Total Variance Explained and Rotated Component Matrix** is presented in Table-4 and Table-5 respectively.

Table 4: Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumul-ative %	Total	% of Variance	Cumul-ative %	Total	% of Variance	Cumul-ative %
1	4.868	30.423	30.423	4.868	30.423	30.423	2.994	18.715	18.715
2	1.650	10.312	40.735	1.650	10.312	40.735	2.664	16.649	35.364
3	1.316	8.225	48.960	1.316	8.225	48.960	1.691	10.572	45.936
4	1.069	6.681	55.641	1.069	6.681	55.641	1.553	9.705	55.641
5	.981	6.130	61.771						
6	.874	5.463	67.234						
7	.744	4.651	71.886						
8	.688	4.302	76.188						
9	.638	3.986	80.174						
10	.579	3.621	83.795						
11	.528	3.298	87.093						
12	.474	2.962	90.055						
13	.456	2.847	92.902						
14	.428	2.677	95.579						
15	.371	2.322	97.901						
16	.336	2.099	100.000						

Extraction Method: Principal Component Analysis.

Source: Compiled from field work

Factor Analysis-Total Variance Explained

Data shown in Table-4 presents initial Eigen values, extraction sums of squared loadings and rotated sums of squared loadings. Eigen values are associated with linear component (factor) before extraction, after extraction and after rotation. Eigen value associated with each factor represents the variance explained by that particular linear component in terms of percentages. If there are less than 30 variables and communalities after extraction are greater than 0.7 or if the sample size exceeds 250 and the average communality is greater than 0.6 then retain all factors with Eigen values greater than 1 as per Kaiser's criterion. The factors for which the Eigen values are greater than 1 are shown in columns labeled as Extraction Sums of Squared Loadings. These values are the same as the values before extraction, except that the values for discarded factors are ignored which is indicated with blank space against the component. In the columns mentioned as rotation sums of squared loadings, the Eigen of the factors after rotation are displayed. Rotation has the effect of optimizing the factor structure and one consequence for these data is that relative

importance of the factors emerged are equalized. Data presented in Table -4 shows four components (factors) in the initial solution having the Eigen values e™ 1 and explaining 55.64 percent of the total variance. In case of un rotated components, the first component explains the maximum variance, followed by second, third, fourth and fifth factors, where as in rotated components, the variance is uniformly distributed. Factor-1 accounts for 18.715 percent of total variance explained, component-2 accounts 16.649 percent of, total variance explained, component-3 accounts 10.572 percent of total variance explained, component-4 explains 9.705 percent total variance explained, over all contributing to 55.64 percent.

Table 5: Factor Analysis-Rotated Component Matrix

Sl.No.	Variables	Component			
		1	2	3	4
1	I often feel a conflict between my family and the demands of my job	0.711			
2	People often make conflicting demands on me	0.673			
3	My workplace is often confusing and chaotic	0.519			
4	My job is repetitive, tedious and boring	0.652			
5	I have more work in my job than anyone could reasonably do	0.569			
6	My job allows me to use my skills and competencies		0.337		
7	My values are congruent with the values of the organization		0.766		
8	There is great deal of conflict in my Organization		0.614		
9	My job is as creative as I want it to be		0.606		
10	I can take time out when I feel that I need it		0.456		
11	My job requires skills that I have completely mastered			0.841	
12	Certainty of duties and responsibilities			0.634	
13	Availability of resources for performing the job			0.500	
14	People here are clear about their current duties and future direction				0.847
15	There is a great deal of competition in my job				0.662
16	I spend most of my time on solving problems				0.449

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization

a. Rotation converged in 6 iterations.

(Source: Compiled from field work)

Factor Analysis-Rotated Component Matrix

The component matrix shows the components before rotation. This matrix contains the loadings of each variable onto each factor. But, in order to discard factors whose loadings are less than 0.40, the coefficient display format option is chosen and the output is displayed with blank spaces for these loadings.

The component matrix displays extracted four factors. If there are less than 30 variables and communities after extraction are greater than 0.7 or if the sample size exceeds 250 and the average commonality is greater than 0.6 then retain all factors with Eigen value greater than 1. If not a scree plot can be used when the sample size is around 300 or more. The rotated component matrix which is a matrix of the factor loadings for each variable onto each factor. This matrix contains the same information as the component matrix except that matrix is constructed after rotation. The Rotated Component Matrix presented in Table-5 shows the partial correlation coefficient between variable and the rotated component. These coefficients help in identifying the component. All the variables that have large factor loadings for a given component are taken.

After thorough observation and analysis it has been found that four factors are the major contributors of job characteristics of teachers in select technical educational institutions in Telangana. The components are explained according to their importance:

Factor-1 Job Integration

1. I often feel a conflict between my family and the demands of my job
2. People often make conflicting demands on me
3. My workplace is often confusing and chaotic
4. My job is repetitive, tedious and boring
5. I have more work in my job than anyone could reasonably do

Factor-2 Work Orientation

1. My job allows me to use my skills and competencies
2. My values are congruent with the values of the organization
3. There is great deal of conflict in my Organization
4. My job is as creative as I want it to be
5. I can take time out when I feel that I need it

Factor-3 Work Environment

1. My job requires skills that I have completely mastered
2. Certainty of duties and responsibilities
3. Availability of resources for performing the job

Factor-4 Job Trends

1. People here are clear about their current duties and future directi
2. There is a great deal of competition in my job
3. I spend most of my time on solving problems

These are the four major factors contributing to the job characteristics of the teachers in technical educational institutions in Telangana region.

CONCLUSION

Overall it can be concluded that variables such as certainty of duties and responsibilities, mastering of required job skills and utilization of skills and competencies have highest mean value implying that majority of teacher – respondents have viewed these statements as important dimensions of job characteristics.

The factor analysis of job characteristics has identified four contributing factors namely job integration, work orientation, work environment and job trends. In view of the

above facts, the technical educational institutions in Telangana have to augment with required resources, allocate workload rationally, provide opportunities to freak out of the job and create an environment which facilitates to divergent thinking among the teachers in technical educational institutions in Telangana for better job satisfaction.

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