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Human Resource Management in the Information Technology Sector - A Study with Reference to Bangalore City

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Abstract:

Human resources are considered as the backbone of enterprise. It is man who makes it possible to get more production from machine. Among the three factors required for development task: man, money and material, it is man or human element which is required more than any other factor to determine the quantity and quality of the performance and output. The subject matter of Human resource management is human being, employee of the organization because it is that part of management process which is concerned with the effective utilization of the labor resources of an organization. In recent years the economist has added “Human Resource” besides land, capital and technology as the key factor in building and developing a nation.

1. Introduction

Human resources are considered as the backbone of enterprise. It is man who makes it possible to get more production from machine. Among the three factors required for development task: man, money and material, it is man or human element which is required more than any other factor to determine the quantity and quality of the performance and output. The subject matter of Human resource management is human being, employee of the organization because it is that part of management process which is concerned with the effective utilization of the labor resources of an organization¹.

In recent years the economist has added “Human Resource” besides land, capital and technology as the key factor in building and developing a nation. The Human resource management is a proactive central strategic management activity which is different from conventional personnel management. Human resource management is a sun rise concept and traditional personnel management is a sun set concept. The HRM is a growing concept. It has tremendous relevance to service industry. Human input is the single largest that goes in the service industry².

Human resource management has attained wider dimension and immense importance in recent years and is universally recognized as the heart of the management process. It views people as an important resource or asset to be used for the benefit of the organization, employer and the society³.

The overall performance of any organization depends solely on the quality of Human resources it possesses. In generic terms, Human resources may be defined as the total knowledge, skills, creative abilities, talents and aptitude of an organization’s workforce as well as the values, attitudes, approaches and beliefs of the individual involved in the affairs of the organization. It is the sum total or the aggregate of inherent abilities, acquired knowledge and skills, represented by the talents and the aptitudes of the employed persons in an organization. This Human resource is so important and so sensitive among all the factors of production or operations that their performance will determine and their behavior will ensure the growth and fortune of an organization.

Human resource management is an activity consisting of the acquisition, development and maintenance of personnel with a view to attain organizational goals and enhancing the personnel dignity, mutual relations, satisfaction and well being of employees. Thus HRM is a comprehensive, people oriented, action oriented, individual oriented, development oriented, persuasive continuous future

¹ Gupta (1997): C.B. DR., Human Resource Management and industrial relations, Himalaya publishing house, New Delhi, p.47.

² Jyothi, P.(2006): Human Resource Management ,oxford university press, Delhi,p.27.

³ <http://humanresources.about.com/>

oriented, inter disciplinary and challenging function of management. The quality of human resources can be ensured only through effective Human resource management. In a sector like Information Technology in Bangalore city the significance of Human resource management is all the more important than any of the management function.

2. Statement of the Problem

The most important assets of resources of every organization are its human resources. The greater the effectiveness and productivity of the human resources, the more will be the effectiveness of the organization. Hence managing human resources is now globally recognized as the basic job of management.

Sound management of human resources through proper training and development, salary administration, creating conducive work environment, providing challenging job and maintaining sound industrial relations, results in the employee's contribution for the achievement of organizational goals⁴.

Effective Human Resource Management and maintenance of congenial and harmonious human relations in Information Technology sector determine not only the performance of the organization but effect the growth and performance of the entire economy. Since the Information Technology sector of Bangalore occupies a predominant position among the various sectors, in terms of revenue earnings, the effective management of the human resources of the IT companies is of utmost importance. It is often felt that the major reason behind the inefficient administration is the poor Human Resource Management practices followed in the Information Technology sector⁵.

3. Need and Significance of the Study

Efficient management of human resources is crucial in determining the growth and prosperity of organization. This is particularly true in the case of Information Technology sector. One of the most important needs of the Information Technology sector is to improve the operational efficiency of their employees at all levels so as to raise the overall managerial competence. Management of human resources spells the differences between the success and failure of any organization and hence it is the biggest challenge now. In recent years, particularly after 90's, employees throughout the globe have become more sophisticated in their demands for high quality work environment, adequate compensation and benefit plans, proper training and development activities etc. In order to strike a harmonious balance between the expectations and long term organizational goals, better Human resource management practices must prevail in all types of organization and Information Technology sector is not an exception to this rule. Moreover, Information Technology sector needs enlightened, hard working and positively motivated people who are capable of applying their minds in a wise and judicious fashion for attaining their organizational objectives and improving their overall operational efficiency. Therefore, it is imperative for the Information Technology sector to pay adequate attention to hire and train the employees and to their development activities and undertakes systematic Human resource management practices on a long term basis.

A serious handicap in the study of Human resource management in Information Technology sector is the lack of literature relating to general and specific problem of Information Technology companies. A comprehensive study outlining the importance of utilizing the human resources in an appropriate manner in Information Technology sector has not been made so far. The present study therefore, strives to bridge the gap by focusing its attention on important aspects of Human resource management like Recruitment and Selection, Training and Development, Job satisfaction, Salary administration, Promotion and Transfers, Work environment and Working conditions, Interpersonal relations etc. such a comprehensive study is the need of the hour and the researcher has undertaken the study with a view to fulfill this vacuum. Thus, the present study is broad based, comprehensive and it gives due weightage to all important aspects of Human resource management practices in the Information Technology sector.

4. Review of Literature

Several studies have been conducted in India and abroad on Human resource management and its various functional areas in the past few decades. A survey of existing literature reveals that no study has been made so far relative to the HRM in IT sector. Some of the important studies conducted on Human resource management and its various functional areas are reviewed here.

Petrescu and Simmons (2008)⁶, in their article examine the relationship between HRM practices and workers overall job satisfaction and their satisfaction with pay. The result indicates that several HRM practices raise workers overall job satisfaction and their satisfaction with pay.

⁴ <http://www.zeromillion.com/business/hrm.html>

⁵ <http://www.buzzle.com/articles/benefits-of-human-resource-management.html>

⁶ Petrescu Alina Ileana & Simmons Rob (2008), "Human resource management practices and workers job satisfaction", International Journal of Manpower, Vol.29, No.7, pp.651-667.

Krishnakumar (2009)⁷, in his doctoral thesis entitled, “HRM practices in cement industry in India” has analysed that more than 80% of employees are satisfied with the human resource policies and practices followed in the company. More than 85% of employees are satisfied with the welfare measures. In allowances more than 80% of employees are satisfied. The overall conclusion about the human resource policies and practices followed in India cement limited sankari is excellent.

Saxena and Tiwari (2009)⁸ have examined in their article, the HRM Practices implemented by leading IT Companies such as TATA, Infosys and Wipro in India. They developed the 3cTER Framework of HRM practices and identified Training and Development, Employer-Employee Relations, Recognition through Rewards, Culture building, Career Development, Compensation and Benefits as important HRM Practices.

Joseph & Dai (2009)⁹ in their article find that there are significant connections between HRM practices and firm performance; that the strategic alignment of HRM is also a driver for firm performance.

Recently in the study conducted by Soomro et al. (2011)¹⁰, it has been found that HRM practices (training, selection, career planning, employee participation, job definition, compensation, performance appraisal) are correlated positively with the employee performance. Further respondents gave highest importance to performance appraisal and then to compensation among individual HRM practices.

Vanhala and Ahteela (2011)¹¹ in their study have found that employee’s trust in the whole organization is connected to perceptions of the fairness and functioning of HRM practices. Such practices can therefore be used in order to build the impersonal dimension of Organizational trust.

5. Objectives of the Study

The main objectives of the study are:

- To identify the various components and sub component items influencing the effectiveness of Human Resource Management practices in Information Technology sector in Bangalore city.
- To evaluate the identified variable in terms of “Percentage score” based on the opinion of the employees with a view to identify the effectiveness of Human resource management practices followed in Information Technology sector in Bangalore city.
- To compare the level of satisfaction of different categories of employees in the IT companies, viz., Higher Management Level, Middle Management Level, Lower Management Level, with respect to the Human Resource Management practices followed in the IT companies on the basis of “Mean score” of opinions expressed by them with respect to the identified variables.
- To ascertain whether the independent variables like Recruitment and Selection, Training and Development, Salary Administration, Promotion and Transfers, Work Environment and Welfare Measures, Human Relations, Job Satisfaction selected for the study are significantly correlated with the dependant variables – Human Resource Management.
- To develop best fit “models” for use in the IT sector of Bangalore city for improving the effectiveness of Human Resource Management practices followed in the IT companies.
- To suggest various measures to improve the effectiveness of Human Resource Management practices followed in the IT sector of Bangalore city.

6. Hypotheses of the Study

The hypotheses formulated for the study are:

- The HRM practices followed in the IT sector are less effective in the employees’ perspective.

⁷ krishnakumar, “Human resource management practices in cement industry in India”. A study with special reference to sankari cements, January 2009.

⁸ Saxena Karunesh & Tiwari Pankaj (2009), “A Study of HRM Practices in Selected IT Companies of India”, AIMS Journal of Management, Vol.1, No.3, pp.29-44.

⁹ Joseph K. E and Dai. C., (2009) “HRM Practices and Organizational Performance: An Empirical Analysis”, International Journal of Business and Management, Vol.4, No.8, pp.117-127.

¹⁰ Soomro R. B, Gilal R .G, Jatoi M. M (2011) “Examine the impact of Human Resource Management (hrm) practices on employees performance a case study of Pakistani commercial banking sector”, Interdisciplinary Journal Of Contemporary Research In Business, Vol.3, No.1, pp 865-878.

¹¹ Vanhala M and Ahteela R., (2011), “The effect of HRM practices on impersonal organizational trust”, Management Research Review, Vol. 34 No. 8,,pp. 869-888

- There are no significant differences among the three different categories of the employees with respect to their opinion about the effectiveness of the Human Resource Management practices followed in the IT companies.
- Each of the independent variables like Recruitment and Selection, Training and Development, Salary Administration Promotion and Transfers, Work Environment and Welfare Measures, Human Relations, Job Satisfaction selected for the study is not significantly correlated with the dependant variable – Human Resource Management.
- The independent variables like Recruitment and Selection, Training and Development, Salary Administration Promotion and Transfers, Work Environment and Welfare Measures, Human Relations, Job Satisfaction selected for the study will not significantly predict the variances in the effectiveness of the dependant variable - Human Resource Management.
- The variances in the effectiveness of Human Resource Management practices in the IT sector are not explainable by the independent variables selected for the study.

In order to test the main hypotheses sub hypotheses are also formulated at appropriate stages.

7. Methodology of the Study

The study is exploratory in nature and hence designed as an empirical one based on survey method. The data's for the study are collected from both the primary and secondary sources.

7.1. Sources of Data

The secondary data required for the study are collected from various books, journals, research articles, seminar reports, study report of expert committees, records maintained in the companies of Information Technology of Bangalore city and other published and unpublished sources.

The primary data are collected from the selected respondents by using a structured interview schedule. The entire text of interview schedule is given in Appendix. A pilot study is conducted for finalizing the interview schedule. The schedule is pretested to measure the reliability of the data. Accordingly, necessary alterations were made in the questionnaire. Seven items found irrelevant have been deleted and nine new items found vital have been added to the questionnaire. The primary data are collected from 1st June 2009 to 1st July 2010.

7.2. Sample Design

According to NASSCOM press release, there are 1921 registered IT companies in 2012-2013, including 200 new firms in that fiscal year, but only 1200 of them are operational and the majorities are very small firms¹². It is difficult to arrive at a reliable estimate for the number of IT firms in Bangalore, but a rough estimate places to around 1200.

The IT sector can be classified into the following broad categories-

- IT services
- Software(includes both Engineering, R and D)
- ITES-BPO services and
- Hardware.

The researcher has selected 20 companies from IT services out of 420 companies, 10 companies from Software(includes both Engineering, R and D)out of 250 companies, 15 companies from ITES-BPO services out of 320 companies and 5 companies from Hardware out of 210 companies by sample lottery method. The IT employees are larger in number and scattered in different parts of Bangalore city and therefore the researcher has used Lottery method for identifying respondents. The category wise classification, total number of companies and number of employees is shown in table 1

Sl. No.	Category	No. of Companies	No. of Employees
1	It Services	20	1400
2	Software	10	650
3	ITES-BPO Services	15	1100
4	Hardware	5	350
	Total	50	3500

Table 1: IT-Sector Categories of Bangalore City

Source: Compiled From Companies Records And NASSCOM Press Release Report 2009.

¹² NASSCOM, 'Indian IT industry-factsheet'. WWW.nasscom.org, accessed may 2009.

Altogether there are 3500 employees working in the 50 companies of the IT sector of Bangalore city. At the first stage, the employees of these four categories are classified into three cadres viz., Higher Management Level (level -1), Middle Management Level (level -2), and Lower Management Level (level -3).

7.2.1. Employees included in Higher Management Level (level-1)

- President
- Vice president
- Associate vice president
- Head

7.2.2. Employees included in Middle Management Level (level-2)

- Manager
- Senior Manager
- Associate Manager
- Team Leader
- Associate Team Leader

7.2.3. Employees included in Lower Management Level (level-3)

- Senior executive
- Executive
- Associate
- Trainee

Sl. No	Level of Employees	Total No of employees in IT services	Total No of employees in Software(includes both Engineering R&D)	Total number of employees in ITES-BPO services	Total number of employees in E-Business	Total number of employees in the category
1.	Higher Management Level	150	80	110	20	360
2.	Middle Management Level	550	210	340	150	1250
3.	Lower Management Level	700	360	650	180	1890
	Total	1400	650	1100	350	3500

Table 2: A Level Wise Classification of Employees of the Four Categories is shown in Table 2

At the second stage, a disproportionate stratified random sampling method is followed for the selection of respondents. Accordingly, 30 employees from the cadre of Higher Management Level (around 10% of the total employees in the level), 120 employees from the cadre of Middle Management Level (around 10% of total employees in the level), 200 employees from the cadre of Lower Management Level (around 10% of total employees in the level) have been selected at random from these three levels. A table showing sample design is given in table 3

Sl. No	Level of employees	No. of sample respondents selected from it services	No. of sample respondents selected from software(includes both engineering r&d)	No. of sample respondents selected from ites-bpo services	No. of sample respondents selected from hardware	Total no. of sample taken
1.	Higher Management Level	10	8	10	2	30
2.	Middle Management Level	50	20	40	10	120
3.	Lower Management Level	90	40	40	30	200
	Total	150	68	90	42	350

Table 3: Table Showing Sample Design

8. Collection of Data

The primary data are collected by conducting interviews with the selected employees in the selected companies by using structured interview schedule. The schedule consisted of 68 sub variables (items) under the six main variables pertaining to the different aspects of Human Resource Management practices in the Information Technology sector of Bangalore city.

The researcher has developed a five point rating scale (i.e., Likert type scale) highly satisfied, Satisfied, No opinion, Dissatisfied, Fully dissatisfied, for scaling the answers to the questions. The respondents are asked to give information on this five point rating scale. In this rating scale, the highly satisfied ones are given 5 points and the fully dissatisfied ones are given 1 point, and in between, points 4, 3 and 2 are given in the order of rating.

Before the commencement of interview, a sample schedule was given to each respondents and a brief explanation regarding the study was given to the respondents. Each question/item in the schedule was asked by the interviewer to the respondent employees. Care was taken to give sufficient time to the employees to think over and answer the questions. The respondents were encouraged to make freely and frankly their opinion and suggestions about Human Resource Management practices prevailing in the organization. Throughout the interview, the respondents were given the impression and assurance that it was an independent and unbiased study and that their responses and opinions would not be disclosed to any one so as to enable them to be frank, lucid and fearless in making opinions.

The respondents were interviewed taking into consideration their time and availability. Much time was spent in waiting for the employees to be interviewed, though particular time had been fixed for their interviews in advance.

All the responses were collected by the researcher personally moving from one company to another

9. Analysis of Data

The collected primary data have been statistically processed, classified and tabulated by using appropriate methods. Tables, figures, and statistical results have been derived with the help of the computer software package called SPSS (statistical package for social sciences).

The statistical tools used for analysis are factors analysis have been extracted by using principal component method and rotated by Kaiser Varimax rotation method.

Variables	Components			
	Factor 1	Factor 2	Factor 3	Factor 4
Recruitment and selection	0.583	0.478	0.010	---
Training Policy	0.700	---	0.074	0.411
Training Practices	0.211	0.134	---	0.159
Areas of training	---	0.253	---	0.860
Training Results	0.132	---	---	0.682
Employment income	0.232	0.158	---	0.131

Promotion	0.853	---	0.130	---
Transfers	0.788	---	---	0.044
Work environment	---	---	0.890	---
Welfare measures	0.073	---	0.854	---
Human relations	---	0.911	0.196	---
Job satisfaction	---	0.848	---	0.131
% of variance explained	19.25	18.324	13.945	12.725

Extraction method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization

Table 4: Rotated factor Matrix

From the factor analysis, it is clear that the highest loading is on the factor 'Acquisition and Development' which alone can explain 19.25% of the variance. Therefore, to make the Human resource management practices in the IT sector more effective, care should be taken while selecting employees for the organization and steps should be taken to provide more effective and proper training and development facilities to the employees of the IT sector.

10. Tenability of the Hypothesis

All of the hypotheses except one formulated in the study are not substantiated and hence are not tenable as indicated by the analyses and findings of the collected data.

The first hypothesis of the study, that the Human resource management practice in the IT Sector of Bangalore City is 'less effective', is mostly substantiated as revealed by the 'percentage score' analysis of all the 68 items under the six main variables, pertaining to the Human Resource Management practices in the IT Sector of Bangalore city. The analysis reveals that the employees satisfaction level in most of the items (forty seven) is revealed by the percentage scores is less than 60, i.e., lying in the Poor and Mediocre practices continuum based on their opinion.

The second hypothesis of the study, that there are no significant differences among the three different categories of the employees in respect to their opinion about the effectiveness of the Human resource management Practices followed in the IT sector, cannot be substantiated as revealed from the analysis of variance made in the study. The analysis reveals that there is significant difference among the three different categories of employees in respect to their opinion about the effectiveness of the Human resource management Practices followed in the Organization. The third hypothesis, that each of the independent variables selected for the study are not highly correlated with the dependent variable- Human Resources Management, is also not completely substantiated. The 'correlation analysis' of variables indicates that all the six independent variables are significantly correlated with the dependent variable- Human resource management.

The fourth hypothesis of the study that the independent variables selected for the study will not significantly predict the variances in the effectiveness of Human Resource Management practice in the Organization, cannot be substantiated as revealed by the multiple regression analysis (Table 4.30&4.31). The analysis indicates that effectiveness of Human resource management practices in the organization is significantly predicted by the independent variables selected for the study.

The fifth hypothesis of the study, that the variances in the effectiveness of Human Resource Management practice in the organization are not explainable by the Independent variables selected for the study, is not substantiated as revealed by the factor analysis. The analysis indicates that all the four identified factors together explain 86.323 percent of the total variance (Table 4.36) in the dependent variable Human Resource Management and only the remaining 13.67% of the variance is on account of unidentified variables.

11. Limitations of the Study

Despite the fact that very reliable results that may also be generalized have been arrived at, the investigator would like to point out some unavoidable limitations that have entered into the study. They are stated below:

- The list of 68 items under six variables selected for the study.
- Since the study is an individual effort, the primary data required for the study are collected from 350 respondents (around 10% of total population) only.
- The study is confined to Bangalore city only.

- The primary aim of this research is to focus attention on the broader aspects and the dimensions of the Human Resource Management practices and it is hoped that the present study will provide a basis for formulating hypotheses to future researches.
- The fifth hypothesis of the study, that the variances in the effectiveness of Human Resource Management practice in the organization are not explainable by the Independent variables selected for the study, is not substantiated as revealed by the factor analysis. The analysis indicates that all the four identified factors together explain 86.323 percent of the total variance (Table 4.36) in the dependent variable Human Resource Management and only the remaining 13.67% of the variance is on account of unidentified variables.

12. Findings

12.1. Factor Analysis

At the final stage, 12 selected variables and sub variables are given to factor analysis to identify the 'Factors' (smaller set of variables) considered important by the respondents.

The factors are extracted by using principal component method and rotated with Kaiser varimax rotation method. The variables given to factor analyses were:

- | | |
|------------------------------|----------------------|
| 1. Recruitment and Selection | 7. Promotion |
| 2. Training policies | 8. Transfers |
| 3. Training practices | 9. Work environment |
| 4. Areas of training | 10. Welfare measures |
| 5. Training Results | 11. Human relations |
| 6. Employment income | 12. Job satisfaction |

The analysis reveals that the first factor contains the variables Recruitment and Selection, Training policies, Training practices, Areas of training and Training

Results, considering the overall picture of the variables in this factor, may be identified by the name Acquisition and Training. This factor accounts for nearly 19.25% of the total variance of the whole battery.

The second factor contains the variables employment income, Promotions, Transfers and Work environment. Considering the overall picture of the variables in this factor, the factor may be identified by the name Environment and Benefits. This factor accounts for nearly 18.324% of the total variance of the whole battery.

The third factor contains two variables viz., Welfare measures and Human relations. Considering the overall picture of the variables in this factor, the factor may be identified by the name Facilities and Relations. This factor accounts for nearly 13.945% of the total variance of the whole battery.

The fourth factor contains only one variable, viz., and Job satisfaction. The factor may be called by the name of the variable itself, i.e., Job satisfaction. This factor accounts nearly 12.725% of the total variance of the whole battery.

All the four identified factors together explained 64.30 percent of the total variance (Table 4.36) in the dependent variable –Human Resource Management – and only the remaining 35.70% of the variance is on account of unidentified variables.

From the factor analysis, it is clear that the highest loading is on the factor 'Acquisition and Development' which alone can explain 19.25% of the variance. Therefore, to make The Human Resource Management practices in the organization more effective, it might be better if care is taken while selecting employees to the organization and steps are taken to provide more effective and proper training and development facilities to the employees of the organization. An analysis of data using multiple regressions, also leads to the same conclusion.

13. Suggestions

Based on the findings of the study, the following suggestions are made in the various functional areas of Human Resource Management, viz., Recruitment and selection, Training and Development, Salary administration, Promotion and Transfers, Work Environment and welfare measures, Human Relations and Job satisfaction with a view to improve the effectiveness of Human Resource Management practices in the Information Technology sector of Bangalore city particularly in those areas where inadequacies are found in the investigation.

13.1. Recruitment and Selection

- Man power shortage could be addressed immediately and necessary action should be taken quickly.
- Bulk recruitment may be avoided. Because finding good talents during bulk recruitment is difficult.
- Gap in manning could be identified well in advance.
- To meet the gap in manning which is high, the recruitment team of the HR department can take the help of placement consultancies.
- Time management is very essential and it cannot be ignored at any level of the process.
- The recruitment and selection through placement consultancies can be the last resort and is utilized only when need.
- The recruitment and selection procedure should not be too lengthy and time consuming.
- Selected candidates can be employed immediately without waiting.

Extra care can be taken while training fresher's. Clay can be molded into a beautiful statue one by one; similarly effective training can only be focusing on every individual. Class room training doesn't work for most of the cases.

- Training through video save time and increase productivity.
- Candidates can be trained logically rather than technically.
- Experienced employees can be trained in such a way that they are capable of self-learning in future. This way unnecessary meeting and group training can be avoided.
- Personality development can be a part of every training session.
- Evaluation process can include candidate's ability of finding alternate solution of a problem.
- Employees can be trained to handle emergency situations like fire accident etc.
- Employees can be well equipped by giving training based on the requirements in projects.

13.2. Salary Administration, Promotion and Transfers:

- Employee's salary can be based on client requirements.

14. Conclusion

- The Human Resource Management practice in the Information Technology sector of Bangalore city is 'less effective' since the employees' satisfaction level is low.
- Human relations, job satisfaction may make the Human Resource Management practices more effective, but they are costly and temporary in nature. Better Recruitment and Selection or improved Work environment and Salary administration may also produce the same result at lesser cost with more steadiness.
- To make The Human Resource Management practices in the organization more effective, it might be better if care is taken while selecting employees to the organization and steps are taken to provide more effective and proper training and development facilities to the employees of the organization.

15. Scope for Further Research

- The present study on 'Human Resource Management in Information Technology sector of Bangalore city' is entirely based on the employees' perspective. It would be more beneficial if it is studied in its broader aspect and other dimensions of Human Resource Management practice in the Information Technology sector of Bangalore. The specific areas of Human Resource Management practice may also be investigated separately. The researcher would like to suggest the following as the possible areas for further research.

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