CHAPTER - X

SUMMARY AND CONCLUSIONS

Today world is facing two major developmental challenges - the first is to ensure that there is equitable distribution of resources, opportunities and benefits of the fruits of development. The second is to develop the human resource. In modern world, human resource is considered the most valuable and challengeable asset of all types of organisations. Today, an organisation employs additional minds and a creative mind has unlimited profit potential. The term human resource development was first introduced in 1969, by Leonard Nadler at the annual conference of the American Society for Training and Development (ASTD). Human resource development develops positive personality traits, skills, knowledge, commitment, value and ability in a person to perform his duties smoothly and effectively. These attributes ultimately determine the efficiency and productivity of work-force. The human resource development is a technique to transform workers into knowledge workers, so that an economy can be ultimately converted into knowledge economy.

In the 1960s human resource development gained popularity as a separate field of study. However, its origin dates back to around 18 B.C. Human resource development is a function more concerned with training and development, career and development, counselling, performance appraisal, potential appraisal and welfare. It focuses on action rather than on record keeping. Human resource development in India has grown from various stages - labour welfare, industrial relations, labour administration, personnel management, human resource management and at last human resource development.

Due to globalization, it is a very challenging task to attract, manage, develop, mould and retain desirable human resources. The nature of human resource is not similar in mental abilities, traditions, sentiments and behaviour. They are widely different from each other as individual person and as a group of persons. It is very difficult to attract, develop, retain and satisfy all employees simultaneously for an organisation to get desirable outcomes. In a rapidly changing world economy, the driving force of a nation’s advancement is innovation through technological revolution, which is embedded in knowledge acquisition, knowledge discovery and knowledge creation. The concept of
‘Knowledge Economy’ or the ‘New Economy’ is used to describe as an economy, in which the generation and exploitation of knowledge plays the predominant role in the creation of wealth. Knowledge economy includes up to date knowledge, skilled and educated human resource; continuous research and development, investment in information technology and infrastructure. Workers are encouraged to do experiment and are not punished for failures. In knowledge economy, human resource and information technology both are the backbone of the economy. Information technology being a knowledge-led industry needs knowledge workers.

**Objectives of Present Study:**

The present study entitled as ‘Human Resource Development Practices in Information Technology Industry in India’ has the following objectives:

1. To study and analyse the various theoretical issues in human resource development and their evolution over time.
2. To assess how human resource development sub-systems are helpful to attain skilled, knowledgeable and effective employees.
3. To study the growth and performance of information technology industry in India.
4. To study the profile and history of selected information technology organisations.
5. To study human resource development practices in selected information technology organisations, particularly the policies related to recruitment, selection, worker participation in management, team development, training, promotion, performance appraisal, leadership, collective bargaining etc.
6. To observe and analyse the human resource development climate prevailing in the information technology industry.
7. To compare human resource development climate in various categories of information technology industry, i.e., software, BPOs and hardware.
8. To analyse and compare the human resource development climate prevailing in the selected information technology organisations.
Plan of Study:

This study consists of ten chapters. Chapter 1 deals with introduction of study. Chapter 2 reviews the studies related to the topic. Chapter 3 consists of database and research methodology. Chapter 4 studies human resource development: some theoretical issues. Chapter 5 deals with the information technology industry in India growth structure and performance. Chapter 6 analyses overview of surveyed information technology organisations. Chapter 7 measures human resource development practices in information technology industry in India. Chapter 8 analyses, human resource development climate survey in information technology industry in India. Chapter 9 deals with organisation-wise study of human resource development climate in information technology sector. Chapter 10 gives summary and conclusions.

Data Base and Research Methodology:

The present study is primarily based on primary data which is collected from the well-known 13 information technology organisations. The sample-size is of 500 employees, belonging to information technology organisations covered in the study. These are Tata Consultancy Services (Noida), Wipro Technologies (Delhi), Infosys Technologies Ltd. (Chandigarh), Hindustan Computer Ltd. (HCL) (Noida), Dell International (Mohali), Birlasoft (Noida), Pyramid Consulting Inc. (Noida), Quark Inc. (Mohali), and Semi-Conductor Laboratory (SCL Ltd) (Mohali), Alcatel-Lucent Technologies (Noida), Attra (Bangalore), Kanbay International Inc. (Pune) and Omnia Technologies (Noida). The sample-size is different in different organisations. It ranges from 25 to 50. Sample-size from each organisation depends upon the response rate of the organisation.

The questionnaire used in the study, has been divided into three parts. Part (a) includes personal data, which is used to obtain the information of employees working in the organisation. It includes information about the name and nature of the organisation, name of employee, nature of job, age of employee, sex, educational qualification, marital status, work-experience, monthly income, nature of appointment and year of joining in the organisation. Part (b), includes mechanisms of human resource development practices
prevailing in an organisation – such as recruitment and selection procedures, training policies, performance and promotion policy, transfer policy, wages, compensation, social-security schemes and working conditions policy, recreational policy, employee-employee/employer/management relation, trade-unions, health facility and other aspects. It includes ten human resource development mechanisms with 53 items to observe the human resource development practices in information technology organisations. Part (c) consists of human resource development climate survey. It includes ten dimensions with 54 items. It observes the satisfaction level of employees with the prevailing human resource development climate in the selected organisations. Rigorous selection process, value-based induction, comprehensive training, team-based job-design, working conditions/environment, development oriented performance appraisal, compensation, career development and value-added incentives are the different dimensions covered in the present study.

For data collection from information technology industry, direct personal interview method was adopted, except for three information technology organisations - Wipro, Kanbay and Attra in case of which questionnaires were collected by e-mail method. In the present study, after collecting the data from 500 respondents - five-point Likert- scale, chi-square test, mean method, percentage method, standard deviation method, rank method and ANOVA analysis are used to evaluate the human resource development practices and climate prevailing in information technology organisations. The present study uses five- point Likert-scale in which mean score 5 indicates – almost always true (AAT), mean score 4 indicates – mostly true (MT), mean score 3 indicates – sometimes true (ST), mean score 2 indicates – rarely true (RT) and mean score 1 indicates – not at all true (NAT).

Recruitment, selection, placement, training, performance evaluation, potential appraisal, career planning, feedback and counselling, promotion, transfer, wages and salaries, incentives, employees welfare, social-security, collective-bargaining, trade union, organisational change, separate department, data storage system, integrate human resource development system, team-development, organisational development, organisational climate, management development, motivation, leadership, transfer, quality circles etc. are the sub-systems of human resource development. In competitive
era, single sub-system of human resource development is not effective. There is a need for integrating all sub-systems and implementing them simultaneously.

Recruitment and selection are the most vital stage of human resource development because selecting wrong person and rejecting right person can be a big mistake for the organization. Performance appraisal focuses on employees to play their roles effectively within the organisation whereas potential appraisal focuses on identifying the employee’s future role in the organisation. Training is a tool of developing skills and abilities of the employees to play present as well as future role effectively. Training also helps in strengthening the interpersonal relationship, encouraging teamwork and collaboration. Organisational development, organisational climate, management development are the mechanisms for developing team collaboration and self renewing skills. Sub-systems like feedback and counselling, career planning, motivation, job evaluation, job design help in the development of potential, capabilities and satisfactions in an employee. Improvement in wages and compensation, quality of work life, trade union, collective bargaining, grievance redressal procedure, benefits and securities, promotion, transfer, quality circles help in uplifting the life of an employee and provide economic, social satisfaction to him. Human resource development sub-systems must be implemented effectively and integrated to get the benefits.

Review of case studies on human resource development helps to study the effectiveness of human resource development policies in different organisations. Various studies indicate how human resource development practices have evolved and developed over time in India as well as in other countries. The chapter of review of literature covers about 54 studies related to the research topic.

**Findings of the Study:**

The main findings of the study are as follows:

**Information Technology Industry in India Growth Structure and Performance**

- As a proportion of Gross Domestic Product, the information technology industry revenue has grown from 1.2 percent in 1998 to an estimated 5.5 percent in 2008 and export growth is expected at 16 -17 percent in 2008-09.
According to the latest findings of NASSCOM, the aggregate revenues of the sector are expected to reach USD 60 billion in 2008-09.

India’s domestic market is estimated to grow by 20 percent in 2008-09. Hardware segment is estimated to grow by 17 percent; services segment is estimated to grow by 20 percent and software products and BPO segment is estimated to grow by 15 percent respectively in 2008-09.

The USA (60 percent) and the UK (19 percent) remained the largest, information technology export markets in 2008.

Maximum number of information technology software and ITES firms are located in National Capital Region and Mumbai and their percentage is 19.1 and 16.2 respectively.

The size of domestic market is USD 12.5 billion and the foreign market is USD 47.0 billion.

In information technology industry, number of employees is increasing. In 2000, the number of employees in information technology sector was just 284 thousand, whereas in 2009 it has reached at 2235 thousand.

Government of India has taken important steps in promoting the growth of Indian information technology industry particularly in its initial stage during eighties and nineties. In 1998, the ‘National Task Force’ on information technology and software development was set-up by the Government of India. According to a report of NASSCOM-Mckinsey, the export component and domestic component are expected to reach, USD 175 billion and USD 50 billion in 2020. Despite, huge success of Indian information technology industry, there are still many constraints in the expansion of information technology sector.

**Historical Background and Overview of Surveyed Information Technology Organisations**

The historical background, total revenue, products quality, number of employees, subsidiaries and other aspects of surveyed information technology organisations, help to get knowledge about the development of information technology industry not only at national level but also at international level. It tells about how this sector has grown with pace of time and become a prominent sector in global economy. It contributes to provide
employment to rising population and create wealth for the economy. Information technology industry is also playing a vital role in the welfare of the society. The information technology industry being a knowledge-led industry, contributes in human resource development by focusing on life-long training.

**Human Resource Development Practices in Selected Information Technology Organisations**

(a) The General Characteristics of Employees Covered in the Survey:

- Data depicts that in Indian information technology industry, majority of employees are that is 97.8 percent are in the age group of 20-40 years, just two percent employees are even less than the age of twenty years and point two percent employees are of more than forty years.
- Near about 78 percent male and 21.8 percent female employees are employed in this industry. The proportion of female employees is much lower as compared to male employees.
- Out of five hundred sample-size of employees, ninety five employees are with general qualification, whereas 405 employees are with technical qualification.
- A majority of employees that is 85.2 percent are of urban background and on the other hand just 14.8 percent employees are of rural background.
- Study shows that just 39.8 percent employees are married and 60.2 percent employees are unmarried. It means a majority of employees are unmarried.
- Majority of employees are engaged in technical department that is near about 74.8 percent, whereas in non-technical, managerial and other department, 19 percent, 5.8 percent and 0.4 percent employees are engaged. Information technology industry is a technical industry and hence needs more technical employees as compared to others.
- There is no employee having more experience than thirty years. On the other hand, a large number of employees that is 61.6 percent are having experience less than five years, 30.4 percent of employees are having experience between five to ten years and 7.6 percent of employees are having experience ten to twenty years. Out of five hundred employees just two employees have experience between twenty to thirty years.
• The large number of employees did not disclose their monthly salaries. It means 53.2 percent of employees did not give any idea regarding their monthly salaries. The 15.2 percent of employees are getting salary between the ranges of Rs. 30-40 thousand per month. Approximately 12.8 percent and 10.2 percent of employees are getting their monthly salaries between the range of Rs. 20-30 thousand and more than Rs. 40 thousand per month. Near about 8.6 percent employees are getting their salaries less than Rs. 20 thousand per month.

• Data reveals that 67 percent of employees are permanent and 18.2 percent are trainees and likely to be permanent. The 8.8 percent employees are purely temporary and six percent employees are just trainees. It means that 85.2 percent employees are permanent in the nature of appointment.

(b) Human Resource Development Practices in Information Technology Organisations:

The present study attempts to explore employee’s perception of the adequate and effective, implementation of human resource development practices in the information technology organisations.

1. Selection Procedure - Out of five hundred employees majority of employees are selected by open interview method that is 70.6 percent. Near about 59.4 percent employees consider that selection procedure in information technology organisation is generally fair. On the other hand 40.6 percent of employees consider that selection procedure is totally fair. None of employees says that it is unfair. Approximately, 87.2 percent employees are satisfied with selection procedure but 12.8 percent employees show their dissatisfaction regarding this procedure.

2. Training Policy - Near about 89 percent employees consider that each and every organisation in information technology sector has provided training facility to its employees. But 11 percent employees oppose it. The 78.4 percent employees consider that multiple-skill training is provided to all employees at different levels.

3. Performance and Promotion Policy - In the information technology organisations, 84.2 percent employees accept that there are adequate career development opportunities but 15.8 percent employees refuse it. The 85.2 percent employees consider that the
information technology organisations mostly adopted formal method for performance evaluation. Majority of employees that is 87 percent employees consider that salary increments, is one of the most popular method adopted for rewarding good performance. Next are appreciations, promotion and cash awards which are accepted by 85.6 percent, 82.6 percent and 71.2 percent employees.

4. **Transfer Policy** - Approximately 66.2 percent employees consider that transfer is done keeping in view company’s as well as person’s requirements. Majority of employees that is 87.6 percent are satisfied with the transfer policy but just 12.4 percent of employees are dissatisfied with this policy in the information technology organisations.

5. **Wages, Compensation, Social Security Schemes and Working Conditions Policy** - Near about 94.6 percent employees are satisfied with their wages and perks, whereas just 5.4 percent employees are not satisfied. The 74.6 percent employees change their jobs for higher salaries and perks, 63.8 percent for better job satisfaction, followed by 53.4 percent for better working conditions and 31.4 percent employees for better career growth opportunities. Majority of employees accept that their jobs are secure in the information technology organisations. Approximately 98.6 percent, employees reported that provident fund is provided to them, followed by 91.2 percent employees reporting that health insurance is provided. The 88.2 percent employees accept that gratuity benefit is provided to them. Compensation in case of major accident is given to employees, is accepted by 72.2 percent. Just, 37.4 percent employees say that compensation in case of death is given to them, which is comparatively very low. Study shows that 47 percent employees say that they work for longer hours than as per schedule and they are not paid any over time allowances for extra hours they work, whereas 53 percent employees say that there are no over-working-hours. They do work, according to the fixed working hours decided by the organisation. If they do overwork, then company pays extra amount to them as an overtime allowance.

6. **Recreational Facility** - To overcome the tension and tiredness among employees, information technology sector provides various types of recreational facilities like - gym, indoor/outdoor games, meditation/yoga classes, music/television facilities, library
facilities; late night parties and club facilities. Majority of employees near about 98.4 percent employees agree that organisations provided recreational facilities to them.

7. Employee-Employee/Employer/Management Relations - Majority of employees state that there is an encouragement for teamwork, freedom for communication and opportunity to take participation in decision making. The majority of employees’ state that management’s attitude towards them is co-operative, friendly and inspiring. Leadership by self-example is moderate according to 43.6 percent of employees. Whereas 9.6 percent and 3.8 percent employees consider that the management’s attitude towards them is dictatorial and indifferent, this is relatively lower. Management encourages their employees to do experiments/risk-taking in advanced industries like information technology is accepted by 78 percent.

8. Trade Union - There is no trade union in information technology industry and majority of employees that is 90.8 percent do not want any trade union. In information technology industry HR department plays a vital role to solve the conflicts.

9. Health Facility - In information technology organisations there are various health hazards because of stressful job and long working hours etc. These health hazards create various health problems - obesity problem, backache problems, joint pain, eyes stress. In information technology organisations, near about 82.6 percent employees are facing problems related to eyes because of long time working on computer screen.

10. Other Aspects - Information technology industry encourages the women employees to participate and promotes conscious no gender discrimination policy. In case of female employees 84.40 percent feel that they do not find it difficult to pull on with their jobs after marriage, but 15.60 percent female employees feel otherwise. However, 99.08 percent of female employees want to continue their jobs after marriage. Various employees consider that information technology industry provides several facilities to the women employees to increase their participation ratio. The information technology organisations also provide transportation facility, hospital facility, housing facility, school facility and sponsorship for higher education facility to its employees. There is fifty-fifty proportion response of employees, about stock option facility and adequate staff in information technology industry. Majority of employees accept that in information technology work is really stressful. In spite of this majority of employees are satisfied
with the prevailing human resource development practices in information technology industry in India

(c) **Human Resource Development Climate Survey in Information Technology Industry in India:**

A productive environment is necessary for effective learning and development in an organisation. It requires a culture of team-work, management’s commitment towards human resource development initiatives and the strong implementation of human resource development sub-systems. Human resource development climate survey in selected information technology organisations gives dimension-wise analysis of human resource development climate in the covered organisations.

**Dimension 1: Rigorous Selection Process** - The selection process is the most vital process in an organisation. Selection of a candidate is depending on either of the following basis - written test, test on programming skills, technical interview and general interview. It also depends upon candidate’s ability to work in a team. The overall mean score, percentage and standard deviation of rigorous selection process dimension are - 4.43, 85.82 and 0.67 respectively, which indicates positive and favourable human resource development climate in information technology industry.

**Dimension 2: Value-Based Induction** - In these days organisations give more emphasis on value-based induction to make feel new employee homely. This dimension includes various items regarding induction such as formal induction programme for new comers; provision of training as an excellent opportunity for new comers to learn comprehensively, the new recruits’ perception of usefulness of induction training in the organisation etc. The overall mean score, percentage and standard deviation are 4.24, 80.99 and 0.71 respectively regarding value based induction dimension. Hence, human resource development climate regarding value-based induction dimension of new-comers appears to be positive and high.

**Dimension 3: Comprehensive Training** - Information technology industry being a knowledge-led industry, training plays a vital role to improve the performance of the employees. This dimension includes the need for training for each individual to develop critical skills; employees take training seriously and the technical skills of the employees are constantly upgraded through a variety of training programmes, workshops and
seminars. In comprehensive training dimension 4.17, 79.30 and 0.80 are the total mean score, percentage and standard deviation. It shows that human resource development is favourable to develop skills among employees to upgrade their performance.

**Dimension 4: Team-Based Job Design** - An organisation's success depends upon not a single person's contribution, but upon the contribution of whole team. Now a days, emphasis is given upon the team work. Team-based job design dimension includes the items such as self-managed work teams and semi-autonomous work groups are the building blocks of the work system, the actual job duties are shaped more by the employees than by a specific job description and individuals and groups are involved in making decisions that affect their work. In team-based job design dimension, overall mean score percentage and standard deviation are 4.17, 79.24 and 0.84 respectively. It indicates positive human resource development climate in information technology industry.

**Dimension 5: Working Conditions / Environment** - For any type of organisation, it is compulsory to provide healthy working conditions / environment to employees under Factories Act 1948. This dimension includes the items such as the quality of physical conditions, excellent infrastructure and support services, sanitation, ventilation and furnishing facilities in the company, canteen and refreshment facilities and safety standards provided in the work-place. In information technology organisations, the majority of employees agree that they are having clean, healthy and excellent working conditions. The overall mean score, percentage and standard deviation are 4.20, 80.02 and 0.72 in dimension of healthy working conditions. It indicates good human resource development climate in context of dimension of healthy working environment.

**Dimension 6: Employee Friendly Work Environment** - The success mantra of these organisations is their human resource with specific and technical knowledge. There must be friendly relationship between employees, employers and management to enable the organisation to touch the height of the sky. Human resources have to be treated more humanly, efforts are made to identify and utilize the potential of employees, employees are not afraid to express or discuss their feeling, communication in the organisation is both at upwards and downward and team spirit is of high order etc items are included in employee friendly work environment dimension. The overall mean score, percentage and
standard deviation of this dimension are 4.06, 76.59 and 0.81 respectively. It indicates good and positive human resource development climate regarding openness, autonomy, experimentation and trust among employee, employer and management of information technology organisations.

**Dimension 7: Development Oriented Performance Appraisal** - In information technology organisation, employees are assessed on the basis of their performance. Various types of opportunities have been provided to employees to develop their skills and to improve their existing performances. Development oriented performance appraisal dimension includes items such as performance appraisal system provides feedback from superiors; high employee participation in the appraisal process, the objective of the appraisal process is employee’s development and performance appraisal reports in our organisation are based on objective assessment and adequate information and not on favouritism. The total mean score, percentage and standard deviation are 4.12, 78.11 and 0.75 respectively. It depicts positive human resource development climate.

**Dimension 8: Compensation** - Compensation refers to an effort which is undertaken by companies to make the life of employee safe, happy and secure. It helps in the improvement of financial conditions of employees. Each individual’s compensation package is determined through a document procedure that is consistent with organisation’s compensation policy, strategy and plan. The overall mean score, percentage and standard deviation of compensation dimension are 4.09, 77.29 and 0.73 respectively. It conveys favourable human resource development climate in information technology industry.

**Dimension 9: Career Development** - Career development is important for both, that is for an individual and an organisation to achieve personal and personnel objectives. Career development refers to the plans set for proper career advancement to achieve targets in the given time. This dimension includes items like, personal development plan is created and maintained for each individual, company provides every employee with opportunities to choose a career path to suit the individual’s core competence, an individual’s development plan and activities are periodically reviewed, individuals have clear career paths within the organisation, company has created a learning environment in the organisation for both professional and personal growth and job rotation in
organisation facilitates employee development. The overall mean score, percentage and standard deviation of career development dimension are 3.98, 74.83 and 0.83 respectively. It indicates that there is little bit need to improve the career planning in the organisations to make human resource development climate more effective and favourable.

**Dimension 10: Value-Added Incentives** - Incentives are the financial awards which are given to employees for their good performances in past and also to motivate them to carry on such performances in future also. Employees are offered an extremely flexible compensation and benefits package like housing assistance, stock options, soft loans and asset acquisition assistance. In value added incentives dimension, the overall mean score, percentage and standard deviation are 3.77, 69.30 and 0.97 respectively. It indicates that there is little bit need to improve the career planning and value added incentives in the organisations to make human resource development climate more effective and favourable.

Total mean score of human resource development climate is 41.23, which indicates very favourable, positive and satisfactory human resource development climate in the information technology industry.

**Comparative Analysis of Software, BPO and Hardware Sectors:**

All surveyed organisations have been classified into three segments - software organisations, BPO organisations and hardware organisation. The total mean score of human resource development climate in software organisations is 42.13, BPO organisations is 39.99 and in hardware organisation is 38.81 respectively. Hardware organisation in present study being a public organisation, there is not so open culture as in software and BPOs (either MNC or private sector). In BPOs mean scores in following dimensions - team-based job design, working condition / environment, employee friendly work environment, career development and value added incentives are relatively low. Likewise in hardware segment mean scores in following dimensions - team-based job design, employee friendly work environment, development oriented performance appraisal, compensation, career development and value added incentives are relatively low. In hardware and BPO segments there is considerable scope for improvement in human resource development climate. Item-wise ANOVA analysis of software, BPOs
and hardware sectors indicates that whether the sector-wise mean scores of various items in the human resource development climate survey are significantly different from each other or not. If the calculated value of F statistic of an item is higher than the tabulated value at 1% or 5% level of significance, we can conclude that there are significant mean differences among sectors that are software, BPOs and hardware. Results of ANOVA analysis show that most of the item-mean scores of these sectors are significantly different from each other as the calculated values of F ratio are higher than tabulated values of F ratio.

**Organization-Wise Study of Human Resource Development Climate in Information Technology Sector:**

On the basis of overall mean score different ranks have been assigned to different organizations. The highest-rated organization has been ranked one, the second highest-rated rank two and so on until the lowest-rated company that is given rank 13. The mean score of all items for each dimension gives the dimension score and the total of all the means gives the total human resource development climate score of the organizations.

**Dimension 1: Rigorous Selection Process** - The overall mean score, percentage and standard deviation of Tata Consultancy Services organization which has the highest rank of 1, are 4.79, 94.67 and 0.40 respectively. Kanbay International and Attra organizations have attained equal rank 2 with same overall mean score 4.75 respectively. Whereas Semi-Conductor Laboratory (SCL Ltd) with overall mean score 4.20 and Omnia Technologies with overall mean score 3.90 have attained lowest rank that is 11 and 12 in rigorous selection process dimension.

**Dimension 2: Value-Based Induction** - The overall mean score, percentage and standard deviation of Tata Consultancy Services organization, again having the highest rank of 1, are 4.70, 92.38 and 0.52 respectively. Infosys Technologies Ltd has attained second highest rank in value based induction with overall mean score 4.50, percentage 87.62 and standard deviation 0.63 respectively. Wipro Technologies and Attra, both organizations have attained same rank that is nine with mean score 4.20. Semi-Conductor Laboratory (SCL Ltd.) with overall mean score 4.09 and Omnia Technologies
with overall mean score 3.50 have attained lowest rank that is 11 and 12 respectively in value based induction.

**Dimension 3: Comprehensive Training** - Tata Consultancy Services has attained first rank with mean score 4.57, percentage 89.17 and standard deviation 0.54 respectively. Alcatel-Lucent Technologies has attained second rank with overall mean score 4.45, percentage 86.17 and standard deviation 0.87 respectively. Quark Inc. with overall mean score 3.73 and Omnia Technologies with overall mean score 3.41 have attained lowest rank that is 12 and 13 respectively.

**Dimension 4: Team-Based Job Design** - The overall mean score, percentage and standard deviation of, highest ranked Alcatel-Lucent Technologies are 4.55, 88.63 and 0.62 respectively. Tata Consultancy Services has attained second highest rank with overall mean score 4.46, percentage 86.46 and standard deviation 0.67 respectively. Hindustan Computer Ltd. (HCL), Dell International and Kanbay International have acquired same rank in this dimension that is four with overall mean score 4.18. Attra, Wipro Technologies and Birlasoft have attained fifth rank with overall mean score 4.08. Semi-Conductor Laboratory (SCL Ltd) with overall mean score 3.86 and Omnia Technologies with overall mean score 3.59 have attained lowest rank that is eight and nine rank.

**Dimension 5: Working Conditions/Environment** - Tata Consultancy Services has again attained first rank for providing favourable working conditions with overall mean score 4.60, percentage 90.00 and standard deviation 0.58 respectively. Infosys Technologies Ltd. with overall mean score 4.56, percentage 89.05 and standard deviation 0.59 has attained second highest rank in providing good working conditions. Pyramid Consulting Inc with overall mean score 4.02 and Omnia Technologies with overall mean score 3.42 have attained the lowest rank that is 12 and 13 respectively.

**Dimension 6: Employee Friendly Work Environment** - Tata Consultancy Services has attained first rank for providing favourable work environment with overall mean score 4.51, percentage 87.71 and standard deviation 0.60 respectively. Infosys Technologies Ltd with overall mean score 4.44, percentage 85.89 and standard deviation 0.73 has attained second highest rank in employee friendly work environment providing good working conditions. Birlasoft and Wipro Technologies with overall mean score 4.09 have
attained equal rank that is nine. Semi-Conductor Laboratory (SCL Ltd.) with overall mean score 3.47 and Omnia Technologies with overall mean score 3.31 have attained the lowest rank that is 11 and 12 respectively.

**Dimension 7: Development Oriented Performance Appraisal** - Tata Consultancy Services has attained first rank for providing favourable working conditions with overall mean score 4.60, percentage 90.09 and standard deviation 0.50 respectively. Hindustan Computer Ltd. (HCL) with overall mean score 4.46, percentage 86.48 and standard deviation 0.56 has attained second highest place in development oriented performance appraisal. Quark Inc. with overall mean score 3.79 and Omnia Technologies with overall mean score 3.35 have attained lowest rank that is 12 and 13 respectively. It depicts the scope for improvement in these two organizations.

**Dimension 8: Compensation** - The overall mean score, percentage and standard deviation of highest ranked Tata Consultancy Services are 4.52, 87.92 and 0.51 respectively. Alcatel-Lucent Technologies has attained the second highest rank with overall mean score 4.35, percentage 83.63 and standard deviation 0.66 respectively. Both Quark Inc and Semi-Conductor Laboratory (SCL Ltd.) with mean score 3.85 have attained equal rank that is 11 respectively. Whereas Omnia Technologies with overall mean score 3.53 has attained the lowest rank that is 12.

**Dimension 9: Career Development** - Tata Consultancy Services has attained the highest rank with overall mean score 4.39, percentage 84.72 and standard deviation 0.66 respectively. Infosys has attained the second highest rank in this dimension with overall mean score 4.34, percentage 83.61 and standard deviation 0.66 respectively. Pyramid Consulting Inc with overall mean score 3.66 and Omnia Technologies with overall mean score 3.35 have attained lowest rank that is 12 and 13 respectively.

**Dimension 10: Value-Added Incentives** - Hindustan Computer Ltd. (HCL) has attained highest rank with overall mean score 4.60, percentage 90.00 and standard deviation 0.53 respectively. Second highest rank is attained by Infosys Technologies Ltd with overall mean score 4.35, percentage 83.75 and standard deviation 0.75 respectively. Omnia Technologies with overall mean score 3.30 and Semi-Conductor Laboratory (SCL Ltd.) overall mean score 3.10 have attained lowest ranks that is 12 and 13 respectively.
Item-wise ANOVA analysis of mean scores of various items in the human resource development climate survey shows that there are significant differences in item-wise mean score among 13 organisations. All the calculated values of F ratio are higher than tabulated values of F ratio.

**Conclusions and Policy Implications:**

- The term human resource development refers to enhancement of knowledge, skills, abilities and talents through life-long training. Hence, human resource is the most vital factor in the process of development of an economy or an organisation.
- An organisation, may be small or large, formal or informal, is composed of heterogeneous human resources, which differ from each other in their skill, knowledge and psychology. So, to manage human resource is a challengeable task for an organisation.
- In global and knowledge-based economy, business has become more competitive and tough due to rapid changes in demand, market structure, market imperfections, technologies, national and international policies etc., which can be handled only by competent, efficient and skilled human resource.
- Human resource development is very challengeable because sometimes there is psychological aversion and fear of new technologies.
- Majority of Indian information technology firms are small in size, hence cannot explore full potential of global opportunities in this sector. Government should provide adequate and efficient infrastructure to facilitate future growth of this industry.
- Most of the present information technology firms are concentrated in few regions. Thus, there is need for locational diversification for future development.
- Information technology industry exports are highly concentrated in a few markets that is USA and UK. Thus there is a need for geographical diversification of export of this industry.
- Both the government and the industry will have to take effective steps for promoting research and development (R&D) and quality standards in information technology industry.
• Recruitment, selection, placement, training, performance evaluation, potential appraisal, career planning, feedback and counselling, promotion, transfer, wages and salaries, incentives, employees welfare, social-security, collective-bargaining, trade union, workers participation in management, team-development, organisational development, trade unions, motivation, leadership etc. are the sub-systems of human resource development.

• Human resource development sub-systems must be implemented effectively and be integrated to get maximum benefits.

• Success of information technology industry lies in its knowledgeable, skilled and competent labour-force. Hence, in information technology industry various favourable human resource development practices have been implemented

• In information technology sector, most of the employees are young, technically qualified, urban and male. The participation of women employees and rural workers is relatively lower.

• The monthly income of employees in information technology organisations is very high as well as flexible, which differ from location to location and also depends on size of organisations and skill of employees.

• Data reveals that information technology industry selects its employees through several fair interview and test rounds in organisations, so that they can get skilled and efficient employees.

• Information technology industry is high-tech and dynamic industry, so it provides multi-skill and need based training to all employees employed at any level.

• Majority of employees are satisfied with transfer policy and it is done on the basis of worker’s convenience as well as company’s requirement.

• Information technology industry pays high wages, compensations, social securities, perks and job security. Provident fund, gratuity, health insurance facilities and compensation in case of major accidents are provided to most of the employees. Employees are highly satisfied with these facilities.

• The working conditions in these organisations are good. The sanitation, ventilation, proper lighting etc are taken care of.
Many types of recreational facilities - gym, indoor/outdoor games, meditation/yoga classes, library facilities and late night party facilities are provided to employees. Health facilities are also provided to employees.

Majority of employees said that the top management in information technology sector is very co-operative, friendly, encouraging and inspiring.

There is no trade union. If there is any type of conflict then it is solved by human resource department and other formal or informal committees.

Various facilities are provided to female employees to increase their participation ratio in this industry. In these organisations there is not any type of discrimination among male and female employees. In information technology industry all employees are equal and have open communication among them

Various facilities like medical, transportation, co-operatives, hostel and hospital facilities are provided to employees for the welfare of employees. There is also provision of stock option in some organisations.

Rigorous selection procedure, value based induction, comprehensive training, team-based job design, working conditions/environment, employee friendly work environment, compensation, development oriented performance appraisal, incentives and rewards career development and value added incentives, are the ten dimensions of human resource development climate.

Present study shows very favourable, positive and satisfactory human resource development climate in the information technology industry. Being a knowledge and human-led industry, it is necessary for this industry to develop, good and satisfactory human resource climate for its own growth and survival.

The comparative analysis of segments shows that human resource development is excellent in software sector, whereas in BPO and hardware there is scope for improvement.

The best organisations in terms of human resource development climate are - Tata Consultancy Services and Infosys Technologies Ltd., whereas the poorly performing organisations are Omnia Technologies and Semi-Conductor Laboratory (SCL Ltd.).