CHAPTER 1

INTRODUCTION

The world is changing rapidly, and with businesses required to be more competitive, the need for employees to be on top of their job has increased. Change is the order of the day, working methods and techniques are witnessing a change giving birth to the need for employees to learn continuously. The objective for the organizations is to improve business processes through enhanced learning that stimulates better performance. The intent for any business entity is to create an engaged and committed employee base resulting in better performance of the individuals and business.

Training is one of the most frequently used Human Resource Development (HRD) interventions. Positive transfer of training is defined as the degree to which trainees effectively apply the knowledge, skills and attitudes gained in the training context to the job. Training is said to be effective if the skills and behavior learned and practiced during training can be transferred to the workplace and can be applied in the context of the job. It should also be maintained over time and can be generalized across contexts.

Training acts as a pathway for learning, learning and development is an important factor in creating a sense of progression and purpose that leads to organizational commitment. Training positively impacts productivity, which results in higher level of customer and employee satisfaction thus increasing brand value. Training can reduce probability of failure as training effects performance, enlarges the skill base and develops the level of
competence, It helps in developing climate for learning which not only aids in training to flourish but also supports self-managed learning practices like coaching and mentoring.

An industry report (October 2012) says that, “companies around the world spend up to $100 BN a year to train employees in the skills they need to improve corporate performance—topics like communication, sales techniques, performance management or lean operations. But training typically does not have much impact.” There are reports of organizations spending an immense amount of money on workplace learning and development activities. Hence, there is a need to ensure that the resources being spent on training employees aid in building their competencies resulting in increased job and organizational performance.

Current economic globalization, accelerated by the removal of tariff barriers, the reduction in transport costs, the boom in information and communication technologies, and the internationalization of investments, is drastically changing the scenario in which the world’s socioeconomic players perform. Nowadays, organizations are challenged to remain competitive and to adapt to the new regulations that are being imposed by the global bodies.

The changing marketplace, with empowered workers and technological advancements, has created an environment where change has become a constant factor. In response organizations have responded by seeking better returns from their investment in employees. Specifically there has been an increase in the past in the use of competencies frameworks managers to help assessment and seeking higher levels of skills and performance.

The Human Resources functions within global organizations have responded to these demands to deliver improved people outcomes. People
management has been recognized as a critical component in knowledge based economies. This has seen a stronger interest in evaluating each HR interventions to assess what added value it delivers to the business.

Over the past years, a number of human resource training evaluation models have been developed as tools to help find the dimensions or factors to be considered in evaluation effectiveness. This has resulted in a range of models available for organizations to consider when undertaking HR evaluations such as training or coaching.

Training is a performance development process to foster learning new techniques and methods to perform job with fullest efficiency and effectiveness. Successful training and development program assist the strategic requirement of the organization and also satisfies the individual needs of the people working in it. Effective training programs also help the employees to concentrate on their individual career development which ultimately assist to achieve organizational short and long run objectives. To improve efficiency in training programs, organizations should give special attention to employee’s participation in designing training methods and modules. Participatory training design motivates the workforce to learn objectively leading to incremental performance development and accelerated professional commitment. To ensure effectiveness of participative training programs, post training evaluation works as an uncompromising tool to design, correct and improve existing and future training needs and methods.

According to Bramley (2003) “Training is a process which is planned to facilitate learning so that people can become more effective in carrying out aspects of their work.” According to CIPD “Training is an instructor-led and content-based intervention leading to desired changes in behavior and which, unless it is on-the job training, involves time away from the workplace in a classroom or equivalent.” Training involves learning. In
other word it is part of learning and development. “Training has an important complementary role to play in accelerating individual and organizational learning alongside other, less directive, activities like coaching, mentoring and peer group learning” (Training to Learning, CIPD, 2005).

Consider the popular and often repeated quotation, “Give a person a fish and you feed him for a day. Teach a person to fish and you feed him for a lifetime (McClelland, 2002)”. So training is the process to build up confidence of employees at workplace in terms of better performance. There is no doubt that training play an important role of human resource development to meet the overall objectives of an enterprise. According to CIPD annual survey report of ‘learning and development’ 2010, 85% of respondents reported that ‘training is more geared to meeting the strategic needs of the business’. Due to the changing business climate and growth in technology it is ensured that organization has to respond to provide different kind of training program (Anderson, 1993). Employee Training program can help Increase productivity and quality of work life. Training acts as a caring guardian for the organization as well as for employees. It Increases revenue and reduces staff turnover and absenteeism. Training is not a cost; it is the most sustainable investment of a company to improve the level of motivation of the employee leading to superior customer satisfaction and quality product and service.

1.1 TRAINING PROCESS SYSTEM

‘Learning event is based on the training process system. Any learning activity that is formally designed in order to achieve specified learning objectives (Hamblin, 1974). This typically involves the following: establishing needs, agreeing the overall purpose and objectives, identifying the profile of the intended learning population, selecting strategy, and agreeing on direction and management, selection of learners and producing a
detailed specification, confirmation of strategy and design of the event, delivery, monitoring and evaluation (Harrison’s, 2002 cited by Marchington and Wilkinson, 2006).’ Training is a continuous development cycle. According to Pilbeam and Corbridge (2002) there are four major stages of the training cycle:

- Identifying Training Needs
- Plan and Design Training
- Delivering Training
- Evaluating Training Outcomes.

Another similar model is the systematic training cycle. According to Critten (1993) the systematic training cycle explains what information needs to be collected in each of the 4 stages. Before any training is carried out, there should be a clear specification of the nature of the training need. The first step in the process is to assess each person against the job specification, identifying whether there is a gap to be filled between present level of knowledge or skills against the expected standard. Then produce a training plan that includes identifying those who need to be trained, by whom and how (on-the-job or off-the-job). Then training is carried out and recorded. Training results are then evaluated against original need that was previously identified.

Changing global context, both individual and collective skills are the most important assets for organizations, and determine their productivity, competitiveness and ability to adapt and be proactive when faced with an uncertain environment. Training is a key strategy for generating skills in people, since it enables them to both learn and unlearn skills – in other words, to acquire new skills and change inappropriate skills. Organizations spend an immense amount of time and money on training in order to facilitate
employees’ learning of job-related competencies. Training has been regarded as an expensive investment. Consequently, organizations are more concerned about how to ensure the transfer of learned competencies to the work. Obtaining – “value for money” from the investment in training has become a major priority of the most training managers. A survey conducted by the American Society of Training and Development showed that, although most large organizations recorded trainees’ reactions to training programmes, only 10% of the companies investigated whether training led to changes in job behaviour (Tannenbaum and Yukl 2001). Thus, most organizations do not have a clear idea whether the lakhs of rupees they spend on training is worthwhile. Despite of spending substantial amount on training and knowing its importance, there is evidence that the evaluation of training programmes is often inconsistent or missing. Some possible explanations for inadequate evaluation are insufficient budget allocated, insufficient time allocated, lack of expertise, blind trust in training solutions, or lack of methods and tools.

In order for training to be considered an investment, it must be held accountable like other investments made by the organization, and must demonstrate that the decisions and actions taken are relevant and profitable. In other words, the actual contribution made by training to the organization’s results must be ascertained. Evaluation is the key tool for this purpose. Thus, the evaluation of training is directly linked with the organization’s quality systems, as the information it provides enables training results to be identified, possible deficiencies to be analyzed and improvements to be introduced to optimise the training function as a whole (Holton 1996 and Kirkpatrick 1998).

Training professionals recognize that it is important and necessary to evaluate training, but such recognition does not translate into the implementation of rigorous evaluation systems that indicate the results of
training. It is noted that seven out of ten companies evaluate some aspect of training: however, the percentages decrease when it comes to evaluating training results and application to the workplace, which occurs in only two out of every ten businesses.

1.2 THE CONCEPT OF EVALUATION

The evaluation of training in organizations means the analysis of the total value of a training system or action in both social and financial terms, in order to obtain information on the achievement of its objectives and the overall cost-benefit ratio of training, which in turn guides decision-making. Evaluation involves collecting information on the results obtained in order to analyze and evaluate them and facilitate the optimization of training in the future. This optimizing function is precisely what links evaluation to quality. Thus, evaluation focuses on determining the extent to which training has responded to the needs of the organization and its translation in terms of impact and profitability. Therefore, evaluating training involves detecting and analyzing the results obtained from a specific perspective: the perspective of the contribution of training to organizational performance and the return on the investment made (Holton, 1996; Kirkpatrick, 1998).

1.3 LEVELS OF TRAINING EVALUATION

1.3.1 Level 1: Participant Satisfaction

The first level of evaluation is to ascertain the participants’ opinions on the training received and their level of satisfaction in this regard. The aspects that usually make up this level of the evaluation, and on which the participants’ opinions are sought are as follows:

- the appropriateness of training regarding their needs and expectations
• achieving the goals set by the training
• quality of content – its suitability, level, depth, interest, ratio between theory and practice
• the quality of the methods and techniques used – suitability, variety, enjoyment
• the quality of pedagogical resources – documents, audiovisual materials, projection equipment
• the trainer – his/her knowledge and skills at a pedagogical level, communication, steering the groups
• the group climate and level of participation
• the quality of other resources that come into play, such as classrooms and spaces, services (e.g. coffee, lunch), timetables, information received
• the scope of applying what has been learned to the workplace
• their suggestions and proposals for improvement

Virtually all organizations evaluate this level, which is usually carried out through a questionnaire that participants complete just after the training has ended. However, the satisfaction of participants can also be assessed during training, with the intention of introducing improvements during the process as a result of participants’ opinions. One can also use other evaluation instruments both during and at the end of training, such as:

• Informal or spontaneous evaluation, through group questioning or by questioning some of the participants individually about their satisfaction regarding the above-mentioned aspects.
• Collective assessment, applying group techniques that organise the participants in small discussion groups to think about one or
more of the items outlined above. The assessment can be conducted by the trainer or by a person from the training department, and allows the gathering of consensus views on the level of satisfaction with training.

- Participant observation by the trainer, which can lead to the development of a report that is delivered to the training department.

- Interviews conducted by the training department with some participants selected at random and/or the trainer.

The professional who prepares the evaluation plan will select one or more of these instruments depending on the characteristics of the training to be assessed, the existing tradition in the organization and available resources. The most effective formula is perhaps the combination of the questionnaire with collective assessment and the preparation of a report by the trainer.

The evaluation of this level has several limitations that should be discussed. Firstly, one should emphasize the great sensitivity of the results to the climate created during training; thus, one can have a very high level of satisfaction with inadequate training activities that are nevertheless led by a trainer with great social and communication skills, and vice versa. Secondly, this level of evaluation provides the participant’s view of the training, but does not report on the actual learning by the participant or on the application of such learning in the workplace, and even less about the impact that all this will have on the organization.

Therefore, this level of assessment should be followed by the next levels as, by itself, it provides useful, but insufficient, information on the results of training. Thus, organizations that only assess participant
satisfaction, of which unfortunately there are still many, do not in fact evaluate training but merely reflect the opinion of its more immediate clients. The usefulness of this will depend on how the information collected is put to use and how it is linked with the results from the other evaluation levels.

1.3.2 Level 2: Learning Achieved by the Participant

The second level of evaluation focuses on identifying what participants have learnt by the end of the training. Evaluation at this level presupposes the existence of operational and measurable training objectives, which act as an evaluation reference. In other words, as a norm from which to value the learning achieved. But one must also bear in mind that training can generate unexpected learning, which as a result is not reflected in the proposed goals. The evaluation system should be designed to allow this unforeseen learning to be collected, which is sometimes of great value to the organization and the individuals.

The evaluation of learning takes place primarily in three stages:

i) At the beginning of training in order to determine the entrance level of the participants. This diagnostic evaluation, if done in advance, allows the entire design of training activities to be tailored to meet the real needs of participants, thereby increasing the effectiveness of the training.

ii) During training, in order to detect the pace of learning of participants and introduce improvements to help them reach the expected level of learning.

iii) At the end of training in order to assess the results achieved by the participants, namely the learning achieved thanks to the training.
The instruments used are highly dependent on the type of training in question and the culture of evaluation present within each organization. If training focuses on the transmission of knowledge, the most appropriate instrument is the classic test or examination, which applied before, during and after training, allows us to detect the level of learning of the participants. Nevertheless, if the training does not lead to obtaining a diploma or a promotion, people are very hesitant about these kinds of instruments and therefore only a few organizations make use of them.

If the training is focused on acquiring skills or around skills development, the most appropriate instrument is a test of actual or simulated implementation, which can be executed in the three stages mentioned above. This type of tool also allows for the evaluation of the level of knowledge acquisition related to the skills learned. When training focuses on attitudes and behaviour, evaluation becomes complicated; performance tests assist in detecting the acquisitions made, but it is also useful to apply specific tools, such as attitude scales, which provide concrete data on new attitudes generated through the training.

There is another very useful tool, both for the information it provides, as well as for the ease with which it may be applied, as it is always within the trainer’s reach: the learning activities. All the activities that the trainer carries out are geared towards the generation of learning among participants, but once they have been well implemented they can also be evaluated. In this way, for example, conducting an exercise on accounting shows the level of understanding among participants on the subject, or implementing role-playing game shows the behaviour and attitudes that people have acquired. Training activities are an important tool to evaluate learning achieved and can be implemented in the three evaluation stages, although they would be more fruitful when applied during training.
The information provided by these instruments can be complemented by the self-evaluation of participants regarding their own learning, conducted before, during and after training. The training department can produce a report that integrates and assesses all the information collected about the level of learning generated through training.

The evaluation of learning is essential as it detects the immediate results of training and allows for further evaluation regarding the transfer of training to the workplace, which is what really interests the organization. In fact, if supervisors do not know what participants have learned, they cannot expect them to transfer anything to their workplace.

1.3.3 Level 3: Pedagogical Appropriateness

This level is focused on determining the level of internal coherence of the training process from a pedagogical point of view. In other words, it investigates the pedagogical appropriateness in both the design and delivery of training in order to achieve the training objectives most effectively and efficiently. This evaluation level is specific to the model under consideration here and provides a clear pedagogical orientation, differentiating it from other evaluation models.

Thus, the elements that are evaluated at this level are those that relate to the design and implementation of the training and its suitability for the target group. They are as follows:

- Training objectives – Their relevance is analysed according to the need or needs expected to be met, their suitability at the level of the target group, their relevance, and the quality of their design and writing.
• Content – Its relevance is determined in relation to the objectives, its relevance, appropriateness of its selection, its level of precision and structuring, and the balance between theoretical and practical content.

• Methodology – Its relevance is determined in relation to the objectives and content selected, the relevance of the methods and techniques prioritised, the presence and usefulness of practical methods, and the quality of application of the methodology.

• Human resources – The teaching skills of trainers are evaluated, both in terms of knowledge and practical experience as well as pedagogical skill and group management.

• Material and functional resources – Their appropriateness, relevance, and spatial quality are analyzed, as well as furniture, pedagogical resources, timetables, and other material aspects related to training.

From the range of instruments that can be used to evaluate this level, those used most frequently and those that provide the most significant findings regarding the pedagogical coherence of training are selected. They are as follows:

Participants’ questionnaire – The training department can develop a questionnaire to gather the participants’ views on the pedagogical coherence of the elements mentioned above, which can be carried out at the end of the training. Rather than developing a specific questionnaire, several items regarding this level of evaluation may be introduced into the questionnaire on satisfaction, which is aimed at the participants. Nevertheless, it should be noted that the information obtained through these items only provides the
participants’ opinions on pedagogical appropriateness, and must therefore be compared with results obtained through the use of other instruments.

Trainer interview – The training department conducts an interview with the trainer to ascertain the pedagogical appropriateness of the design and the delivery of the training. The interview collects information on all the elements outlined above, and therefore takes place at several points: at the beginning of training to oversee and adapt the design, during training to monitor its implementation, and after training to assess the adequacy of the process undertaken. The interview provides very useful information and helps detect imbalances in order to improve the training.

Observation – Observation is conducted during the delivery of the training, and may be one of two types depending on the agent carrying it out. On the one hand, the trainer can conduct participant observation of the development of training activities as well as of his/her own performance. The information obtained can be drawn up in a report to be discussed in the final interview with the training department mentioned earlier. On the other hand, the training department can conduct a systematic observation of the development of training, using a recording system – for example checklist, video – and then subsequently analyse the information gathered. This type of observation, given its cost and difficulty, is usually reserved for those training activities that, for specific reasons, require a thorough assessment of their pedagogical appropriateness.

Self-evaluation – The trainer conducts a self-evaluation of the development of training and his/her performance, which is reflected in a semi-structured document that is subsequently analysed by the training department.

These would be the main options for evaluating the pedagogical appropriateness of training. When drawing up its evaluation plan, each
organization should select the evaluation items, agents, timing and tools, depending on its needs and actual possibilities. This level of evaluation provides very useful information for the training department; it guarantees the adaptation of the training design to meet the needs of the organization; it allows for the introduction of improvements during the training process and optimizes subsequent applications.

1.3.4 **Level 4: Transfer**

This level is focused on detecting changes that take place in the workplace as a result of training. At Level 2 the learning achieved by the participants is identified, but what really matters to the organisation is not the learning itself, but rather the transfer of learning to the workplace, that is, how it translates into changes in the working behaviour of people. Thus, evaluating transfer means detecting whether the skills acquired through training are applied in the workplace and whether this is sustained over time.

Even though transfer is what all training activities should pursue, achieving this goal is not always guaranteed and is sometimes not easy. There are several models that analyze transfer factors (Noe 1986, Baldwin and Ford 1988, Holton 1998, Awoniyi et al 2002, Clarke 2002, 2005, Egan 2004, Kontoghiorghes 2004, IPDD 2004, Lim and Morris 2006 and Shankar 2006). Here focus is on those factors that depend on the training department and determine the possibility of evaluating the results.

Training should be geared towards the transfer of the learning that it generates, and this should be reflected in both the design and the implementation and monitoring of training. Thus, training must begin with a detailed knowledge of the organization’s needs and must be established within the operational objectives. These objectives will allow a subsequent evaluation of the changes experienced in people’s working behaviour: if the
situation from the start is not known, or the objectives, cannot objectively
determine the changes that have occurred. Furthermore, training needs to be
implemented following a methodology that facilitates and enables transfer, in
other words, a methodology which is practical, implementable, close to the
reality of the job, and which includes strategies to guide and ensure
subsequent transfer. Finally, training has to look at mechanisms for
monitoring and maintaining transfer, mechanisms that should run parallel to
the evaluation.

In this way, the orientation of the training design towards transfer is
the first requirement necessary for the achievement of transfer of training. But
this also requires the active involvement of other key agents in addition to the
trainer, such as the participant and his/her superiors and colleagues. These
play a crucial role in both facilitating transfer as well as in its evaluation,
ensuring the application of lessons learned, eliminating potential barriers and
collecting information that will make the evaluation possible.

The evaluation of transfer thus involves several persons who all
play a crucial role in its execution:

- Trainers and training specialists design the evaluation
  system and drive and oversee its implementation. For this
  reason they should obtain the cooperation of other agents
  and negotiate their level of involvement in the evaluation of
  transfer.

- The participants also play an important role through self-
  evaluating their transfer and assessing the potential barriers
  in their environment.

- The participant’s supervisor or line manager is a key player
  as he/she knows the daily performance of co-workers in
detail and can assess whether changes have been achieved through the training.

- The participants’ colleagues and even customers can act as important agents at this stage of evaluation.

Nevertheless, it is worth noting that the evaluations of these agents may be too highly subjective and thereby invalidate their opinions. The evaluation instruments that are used should address this issue and ensure the objectivity of the information collected.

There are several instruments available to evaluate transfer. Depending on the type of training being evaluated and the characteristics of the organizational environment, the most efficient tools should be selected. The following instruments are used most frequently:

Performance observation – systematic for repetitive, participant tasks and for the more complex tasks – is an instrument which is slow to implement but provides very valid information.

The interview, either of the participants themselves or of their superiors and colleagues in whatever form: structured, informal, in person, by telephone, individual, group, etc.

Questionnaires, for the participants as well as their colleagues. The information gathered can complement and be compared against the findings obtained using the previous instruments. Questionnaires aimed at participants can allow them to self-evaluate their transfer and can lead to a self-assessment report.

Reports of superiors on the transfer detected, with detailed data on the results, the strengths and weaknesses, etc.
The action plans developed by participants at the end of training and reviewed periodically represent not only a useful guide for transfer but also serve as an interesting assessment tool. As regards the timing of an evaluation, it is advisable to wait between one and six months after completing the training in order to allow time for transfer to materialize and stabilize after the “post-training euphoria”. The most appropriate period depends on the type of learning generated by the training as well as its complexity: that is, the more complex and more numerous the skills acquired over a period of time, the more time will be needed for transfer and stabilization. In any case, the maximum waiting time should not exceed six months so as to avoid forgetfulness, and the evaluation should be repeated periodically in order to assess – and enhance – the maintenance of transfer.

Evaluating transfer is of crucial importance to the organization as it demonstrates the contribution of training to the improved performance of individuals, as well as the benefits it brings to the organization, in order to subsequently determine its impact and profitability. Thus, evaluating transfer is the first step towards providing thorough proof of the real value of training.

1.3.5 Level 5: Impact

The impact of training is understood to mean the effect of certain training activities on an organization, in terms of responding to the needs of training, problem-solving and contributing to the scope of the strategic objectives that the organization has identified. Thus, the impact consists of changes due to learning attained through training and how the transfer of this learning into the workplace affects the department or area of the trained person as well as the organization as a whole.
The impact of training is thus conceived as the effects that training generates in the organization, as a result of the use of the skills that participants have acquired through training. There are two types of effects:

i) Qualitative or not translatable into economic terms; and

ii) Quantitative and translatable into monetary value.

It is the latter that makes it possible to assess the profitability of training, which is addressed in the next level of evaluation. The impact assessment focuses on identifying the results and benefits that training brings to the organization. Benefit is understood to mean the increase in levels of usefulness or welfare associated with the increasing quantity of training acquired. The calculation of the benefits concentrates on measuring the effects of training by establishing impact indicators. An impact indicator is a unit of measurement to identify the concrete and tangible effects of training in the organization (qualitative and quantitative). These indicators make it possible to identify, monitor developments and measure the actual impact that the training has generated in the organization during a period of time.

Impact indicators may be expressed in various terms: they can be expressed in quantities (numbers of purchases or numbers of products), as indices (of quality or of satisfaction), as periods (of delivery or of service provision) and as effects (materials used, human resources involved, etc.). There are two types of indicators:

i) Economic, or hard indicators; and

ii) Qualitative or soft indicators.
Their characteristics are substantially different, if not conflicting. Hard indicators are:

- easy to measure and quantify;
- easy to translate into monetary value;
- objective;
- common in corporate data;
- highly credible to management; and
- barely present in training.

Examples of hard indicators include sales, turnover, number of customers, number of errors, etc.

Soft indicators are:

- difficult to measure and even more so to quantify;
- difficult to translate into monetary values;
- subjective;
- unusual in corporate data;
- scarcely credible to management; and
- always present in training.

Examples of soft indicators include motivation of the collaborators, suggestions made, working atmosphere, etc.

The identification of valid indicators will allow training benefits to be calculated in a thorough and appropriate manner. Since this is the most difficult procedure in the evaluation process, a series of guidelines and
suggestions that may facilitate identification and provide guarantees of success for the process as a whole is presented:

- It is necessary to follow a set of criteria when selecting impact indicators. The most significant are relevance, moderate cost, reliability, acceptability, reduced numbers and a low pollution index.

- The impact indicators should be identified during the planning of training and should be directly linked with the training objectives as well as the objectives of the organization.

- All those affected by the impact evaluation must feel involved in the process and must participate actively in it.

- It is extremely useful to classify the impact indicators according to the different types of training that are to be assessed; this facilitates the whole process and makes it more cost-effective. It is also appropriate to link economic indicators to the organization’s operating statement.

- It is necessary to specify the type of application of each indicator, in other words, the period, the agent, the source and the instrument to be used to measure it. The instruments most frequently used are observation and reports on the organization’s results.

- A follow-up of the evolution of the indicator will be carried out in order to establish a follow-up table to facilitate data collection.

Impact assessment is also known as the assessment of organizational results (Waagen 1998), understood to be the measurement and verification of the effects of training in relation to the attainment of the
organization’s objectives, or in other words, ascertaining the overall results of the training activities. The impact assessment is the most complex level of those that make up the model, but is at the same time the most interesting for training professionals and for the organization as a whole, since it shows the effects and real value of training, and justifies the investments made.

1.3.6 Level 6: Profitability

The translation of training impact into economic terms enables a profitability index to be obtained, expressed by the return in monetary benefits generated by the investment made in training. Two procedures are followed for this purpose:

i) Calculation of the costs involved; and

ii) Calculation of the profitability.

Calculating costs. Cost calculation is the first step towards undertaking a training impact assessment, and focuses on identifying the costs involved in the training processes carried out by an organization. There are different types and classifications of costs. Those most commonly used in the field of training for organizations are as follows:

- direct costs – trainers, materials, spaces, per diems, etc.
- indirect costs – management, design, administration, communication, additional materials, participants’ salaries, etc.
- overheads – general services of the organisation, such as utilities, cleaning, depreciation, etc.

All these costs are generally classified into fixed and variable costs, a process that is very useful when preparing the training budget, and also useful when calculating the overall costs of various training activities. This
calculation makes it possible to obtain the total costs and therefore the investment made in training, amounts to be used subsequently to calculate profitability. The calculation of costs is the simplest of the calculations involved in evaluating profitability as it merely involves collecting the data available in the organisation – usually found in the budgets and economic information relating to training – and adding it together in the required categories.

Calculating profitability. Once the impact in terms of benefits (evaluation Level 5) and the cost of training have been obtained, profitability can be determined. Two procedures may be highlighted here:

i) the cost-benefit analysis

ii) return on investment

Both aim to obtain a profitability figure and are therefore based on the costs and benefits involved in the training. The cost-benefit analysis seeks the net benefit of the training, for which purpose it compares the costs with the benefits using the following formula:

\[
\text{Total benefit} - \text{total costs} = \text{net benefit}
\]

However, the return on investment, explained at length by Phillips (1994), calculates profitability by indicating the net profit gained on the investment made, in other words, by looking for a profitability index. The formula applied is as follows:

\[
\text{ROI} = \frac{\text{Net benefit}}{\text{Cost}} \times 100
\]
As can be seen, both methods for calculating profitability are based on a comparison of costs and benefits, and although they follow different processes they aim to identify the profitability derived from the training activities conducted. This is a purely economic calculation, and therefore it leaves aside the qualitative impact, the importance of which was discussed above. Therefore, these results should be added to the non-economic results obtained from the benefits calculation. Nevertheless, the calculation of profitability alone is enormously helpful in making decisions about the levels of investment in training and provides data that are highly valued by the managing bodies of organizations.

1.4 A BRIEF CRITIQUE OF TRAINING EVALUATION MODELS

The most popular and widely known approach to the evaluation of training is Kirkpatrick’s framework. The model has served as the primary organizing design for training evaluations in organizations for over 30 years. Kirkpatrick identifies four categories of measures:

i) Reaction

ii) Learning

iii) Behavior

iv) Results (Kirkpatrick 1979)

Level one includes assessment of training participants’ reaction to the training program, especially assessment of affective responses to the quality or the relevance of training. This has been incorporated by most organizations into the frequently used training evaluation questionnaire or ‘happy sheet’. Level two, learning measures, is defined as quantifiable indicators of the learning that has taken place during the course of the
training. Level three, behavior outcomes, addresses either the extent to which knowledge and skills gained in training are applied on the job or result in exceptional job-related performance. Finally level four, outcomes are intended to provide some measure of the impact that training has had on broader organizational goals and objectives (Alliger and Janak 1989, Bates 2004). Critics have highlighted a series of criticisms of the Kirpatrick’s model (Bates 2004).

Guerci and colleagues have suggesting that the four levels of evaluation that it proposes lead to an excessively simplified vision regarding the effectiveness of training, particularly because it does not consider the influences of the organizational context (Guerci et al 2010). A second criticism is based on the causal relations between the levels of evaluation. According to the model it is not possible to achieve positive results at top levels if this does not occur at lower levels (Alliger and Janak 1989). There is limited published evidence to support this. A third criticism of the hierarchical model is the unitary perspective. The model assumes the point of view of the organization and it neglects the evaluation needs of all the other stakeholders involved in the training process (Guerci et al 2010).

Kaufman and Keller (1994) have suggested that Kirkpatrick’s four levels are also incomplete and lead to a too narrowly focus on the evaluation of training alone (Watkins et al 1998). The evaluation framework proposed by Kaufman and Keller (1994) incorporates aspects of program evaluation, keeps the distinctive four-level features and suggests a five-level evaluation framework. That is, the application of the four levels of training evaluation is expanded in order to consider the internal and external consequences of all interventions related to performance and organizational improvement. According to these authors, Kirkpatrick’s four-level evaluation framework devalues the evaluation of societal impact or the usefulness and availability of
organizational resources. They offered four additional aspects (Stokking 1998)

i) Consumer satisfaction and societal contribution as additional evaluation criteria.

ii) Evaluation as part of the process of needs assessment and planning.

iii) Identification of the desired or expected results and consequences as part of the same process.

iv) Availability and quality of resources and efficiency of their use as additional criteria.

Stokking (1998), is equally critical of the Kaufmam and Keller model. Stokking suggests the model lacks clarity in some aspects, such as the distinction between the desired chronology of activities and the aspects of level and importance, or regarding implementation. Implementation and achievement of the learning objectives both integrate Acquisition (Level 2), which should indicate the success of training implementation.

An alternative and widely quoted model is the CIRO (contents/contexts, inputs, reactions and outcomes) model proposed by Warr et al (1970). The model measures learning/training effectiveness by CIRO elements, both before and after training. The strength of the CIRO model is the measurement of managerial training program and also the effectiveness consideration of objectives (contexts) and training equipment (inputs).

Tzeng and colleagues have suggested that this model does not indicate how measurement takes place and, for this reason, the model does not provide important information regarding the current training situation, which could, certainly, lead to improvements (Tzeng et al 2007).
The CIPP model (context, input, process and product) proposed by Stufflebeam shares many of the features of CIRO model (Roark et al, 2006). However with CIPP, the context provides situational data in order to determine program objectives, input determines the strategies used to achieve the outcomes, product involves program implementation and product involves evaluation of outcomes worth and effectiveness (Khalid et al, 2012).

Bennett (1997) has suggested that the model assumes rationality by decision making and ignores the diversity of interests and multiple interpretations of these agents. Further, Bennett suggests the model is overly abstract and hard to implement in practice.

While Kirkpatrick has been the dominant model for organizational evaluation for three decades Phillips’ ROI (return-on-investment) framework has emerged in the past decade and has entered the organization evaluation lexicon with its focus on return on investment – a popular phrase for those conducting investment decisions. The model combines the four levels of evaluation developed by Kirkpatrick and adds a fifth level to measure success in areas of Human Resources function, that is, the ROI measurement compares the monetary benefits from the program with the program costs (Chmielewski and Phillips, 2002).

This evaluation model suggests that while the four factors are useful, without a consideration of the monetary value of specific training initiatives, such as training or coaching, investments should not be considered. The model however has serious limitations, which have largely been ignored in the overt focus on business ROI. One major weakness is the complexity in determining returns on soft aspects of business such as training. In fact, it might suggest such efforts are impossible in non-controlled environments. This is because it is difficult in reality to isolate the effects of the specific intervention, for example training, from other organizational
factors, which can lead to improvements in performance (Hogan, 2007). These organizational factors can be a change of manager or leadership, to changes to demand for the product or service due to fashion or economic factors, as well as wider impact of other organizational interventions from a pay rise to a change in office layout.

ROI has been used in several training and coaching evaluations with enthusiasm (McGovern et al 2001). In the McGovern study participants were asked to estimate the value (benefit) of the coaching on key decisions. These estimates where then reduced by 50 percent and compared with costs. Clearly, no serious scientific study to evaluate the efficacy of a drug or therapy intervention would ask clients to estimate the benefit as part of the evaluation.

Brinkerhoff suggests a six-stage approach to evaluation of training that includes the following stages:

i) Goal setting;

ii) Program design;

iii) Program implementation;

iv) Immediate outcomes;

v) Intermediate or usage outcomes; and

vi) Impacts and worth (Kumpikaite 2007).

Brinkerhoff’s (1989) model adds two preliminary levels to Kirkpatrick’s model, in order to provide formative evaluation of training needs and the training design (Holton and Naquin 2005).

This model presents some limitations, since it consists of both formative and summative evaluation, which is only possible in ideal cases
where the employer and the training organizers are closely related, where an evaluation design has already been built during the training process, or where there are no competing deadlines or reduced budgets (Holton and Naquin 2005).

Bushnell (1990) described the Inputs, Process, Outputs/Outcomes (IPO) Model that interprets the evaluation process as cyclical. This model first examines input factors that may influence a program’s effectiveness (for example, trainees’ qualifications, program design, instructors’ quality and qualifications, materials quality, facilities, or equipment). After, it analyses process factors (such as planning, developing or delivery of the training). Finally, the evaluation of results is organized into evaluation of outputs (short-term results) and evaluation of outcomes (long-term results). Outputs include trainees’ reactions, performance or improvement, and outcomes focus on business results (Russ-Eft et al 2008).

Overall, criticisms of the model are based on its lack of information related to program functioning, or to the specific components that affect the results. Then, there is no way to identify at what point the program failed, because no impact is found (Robertson 2004).

Holton (1996) proposed the HRD Evaluation and Research Model that hypothesized three outcomes levels:

i) Learning;

ii) Individual performance; and

iii) Organization.

According to Holton (1996) these levels are influenced by primary (such as ability, motivation and environmental influences) and secondary factors (for example, those that affect motivation to learn).
Later, Holton (2005) recognizes that a full test of initial HRD Evaluation and Research Model is impossible because the majority of the tools to measure the constructs presented in the model did not exist. For these reasons, the author proposed an updated version of the model by delineating specific constructs that should be measured in each of the conceptual categories proposed (Holton 2005). Kirwan and Birchall (2006) also pointed out that this model solely ‘‘describes a sequence of influences on outcomes occurring in a single learning experience and does not demonstrate any feedback loops’’ (p. 257) and it does not indicate any interaction between factors of the same type.

Brinkerhoff (2003) developed the Success Case Method (SCM) for evaluation. According to the author, an SCM study can be used to get answers to any, or all, of four basic questions:

i) What is really happening?
ii) What results, if any, is the program helping to produce?
iii) What is the value of the results?
iv) How could the initiative be improved?

The answers to these questions will give information concerning diverse aspects, such as the way a new innovation is being used; the positive outcomes of a new program or change; identification of organizational units that are using new tools and the success achieved as a result of these new methods; estimation of return-on-investment, support to decision making related to the value a specific program is able to produce, taking into account its current level of impact.

The main disadvantage of SCM is that this model requires some level of judgment regarding what trainers identify as critical success factors
on the job, because the model may not identify trainees’ problems when returning to work (Casey 2006).

More recently, Dessinger and Moseley (2006) developed the Dessinger-Moseley Full-Scope Evaluation Model. This model blends, in an iterative flow, the benefits of performance improvement and evaluation, and it also integrates formative, summative, confirmative, and meta evaluation. The main purpose of the model is to formulate judgments about the merit and worth of any performance improvement intervention.

Some of the potential weaknesses of the model are noted by the authors themselves. Dessinger and Moseley (2006) refer that ‘‘Full-scope evaluation stays around longer than ‘regular’ evaluation and requires long-term support from the organization and all the stakeholders:’’ (p. 322).

**Table 1.1 Ten popular evaluation models and their criteria**

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Evaluation Models</th>
<th>Evaluation Criteria</th>
</tr>
</thead>
</table>
| 1.    | Kirkpatrick’s Model | 1. Reaction  
 |       |                   | 2. Learning  
 |       |                   | 3. Behavior  
 |       |                   | 4. Results  |
| 2.    | Kaufman’s and Keller’s Model | 1. Enabling and reaction  
 |       |                   | 2. Acquisition  
 |       |                   | 3. Application  
 |       |                   | 4. Organizational outputs  
 |       |                   | 5. Societal outcomes  |
| 3.    | CIRO Model | 1. Contents/contexts  
 |       |                   | 2. Inputs  
 |       |                   | 3. Reaction  
<p>|       |                   | 4. Outcomes  |</p>
<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Evaluation Models</th>
<th>Evaluation Criteria</th>
</tr>
</thead>
</table>
| 4.    | CIPP Model                         | 1. Context  
|       |                                    | 2. Input  
|       |                                    | 3. Process  
|       |                                    | 4. Product |
| 5.    | Phillips Five Level ROI            | 1. Reaction and Planned Action  
|       |                                    | 2. Learning  
|       |                                    | 3. Applied learning on the job  
|       |                                    | 4. Business results  
|       |                                    | 5. Return on investment |
| 6.    | Brinkerhoff’s Six Stage Model      | 1. Goal setting  
|       |                                    | 2. Program design  
|       |                                    | 3. Program implementation  
|       |                                    | 4. Immediate outcomes  
|       |                                    | 5. Intermediate or usage outcomes  
|       |                                    | 6. Impacts and worth |
| 7.    | IPO Model                          | 1. Inputs  
|       |                                    | 2. Process  
|       |                                    | 3. Outcomes/Outputs |
| 8.    | HRD Evaluation and Research Model  | 1. Learning  
|       |                                    | 2. Individual performance  
|       |                                    | 3. Organization |
| 9.    | Success Case Method                | 1. Evaluation focus and planning  
|       |                                    | 2. Impact model creation  
|       |                                    | 3. Administration of a survey to gauge success rates  
|       |                                    | 4. Conduction of interviews with success and non-success instances  
|       |                                    | 5. Formulation of conclusions |
| 10.   | Dessinger-Moseley Full-Scope       | 1. Formative evaluation  
|       |                                    | 2. Summative evaluation  
|       |                                    | 3. Confirmative evaluation  
|       |                                    | 4. Meta evaluation |
A research study by the Chartered Institute of Personnel and Development (CIPD 2010) explored the way UK organizations measured and reported the contribution of learning to strategic value. The results identified four main approaches to measuring and reporting on value (CIPD 2010):

i) Learning function efficiency measures.

ii) Key performance indicators and benchmark measures.

iii) Return on investment measures.

iv) Return on expectation measures.

According to the CIPD, effective evaluation is essential to improve the quality of HR practice. However, to achieve an effective evaluation model is essential. Such models provide the opportunity to place learning and development in the centre of the business; and provide clear measures and metrics of the interventions, which have been used (CIPD 2010).

The limitations of the models, which are often overly complex, suggest that a new comprehensive model for is needed for evaluation, which is practical and can be implemented within an organization by human resource managers, as well as offering more advanced methods for researchers for higher-level analysis.

The key contribution of the study is to set out an alternative model, which aims to fill the gaps in the existing models, as well as integrating their strengths. Further, the main aim of the study is to develop a practical model, which can be used to meet the needs of both practitioners and researchers in the evaluation process.
1.5 PROBLEM STATEMENT

Top management expects to obtain positive financial benefits from the training investment spent annually. Research divulges, “training must demonstrate improved performance and financial results” (Garavaglia 1993, p.63); however, training does not always translate into effective behaviors and organizational results (Newtrom 1986, cited in Kraiger 2002). Learning is of little value to organizations, unless it is transferred in some way to performance (Holton et al 1997). As a result, training practitioners and researchers have intensified the need to realize effective training and measure its results.

Literature review in the field reveals that one of the best ways to reach training effectiveness is increasing the rate of training transfer. Training transfer involves the effective application of new knowledge, skills, and attitudes (KSA’s) gained through training interventions to job performance tasks, and the maintenance of this application over time (Bladwin and Ford 1998). The real value of training come not from individual learning but rather from having capable people transferring their knowledge, skills, and attitudes (KSA’s) learned in training programs designed to improve organizational results.

Transfer of training and learning has constantly been serious problem to organizations. Researchers calculated that only 10 % of learning in training is implemented on job. This finding presents a grave problem for organizations because training transfer and learning is the key element through which training enhances the organizational performance and employee development level. It is therefore imperative for organizations to design their training program in such a strategic way that improve the transfer of training and learning. The model in this research is developed on the basis of perception that despite spending huge amount on training and development
organizational resources on training is very limited. This study will investigate how transfer and learning, plays its role in implementing training on workplace. Due to the impact of Training Transfer and Learning, what is the level of Training usefulness and employee development aspects of job satisfaction should be measured. Transfer of training means extent of implementation of learning acquired during training process at workplace and to maintain it for period of time. It can be described as the trainee’s desire to apply knowledge and skill attained during training program on the job.

Transfer of training and learning is a fundamental issue which is associated with employee’s change as per the requirement of organization. When training makes difference to employees and organizational performance it must be ensured that training is definitely transferred to workplace (Yamnill and McLean 2001). Although too much has been written on training and organizations are focusing on training but very limited research is available on impact of training on Training usefulness and employee development. In 2012, only 14% of the organizations participating in Training and Development Benchmarking Services, measured impact of training, training transfer and learning on employees and employee development aspects of job satisfaction (Sofo 2007). The current study presents an insight and empirical analysis with reference to relationship between actual training transfer and Learning.

1.6 PURPOSE OF THE STUDY

In order to deal with the challenge of how to make the training investment worthwhile for the organizations, this study proposes that to achieve a positive training evaluation, training learning and transfer rate, it is necessary to develop and implement a oral evaluation training system, which may be able to track all individual and organizational factors that affect training effectives before and after training, learning and transfer.
The main purpose of this study is to examine the relationships between the dependent variables transfer of training, Transfer of learning and employee development aspects of job satisfaction with the two primary independent variables, the formal Pre-Training, During Training and Post Training and Satisfaction with Training session, Content and with Trainer. The examination is aimed to determine if the use of formal training evaluations designed with transfer of Training and Learning rate.

Two important set of contributions would be achieved if findings demonstrate that pre- and - post training evaluations are able to influence the training transfer rate. At the practitioners’ level, they might meet convincing findings to consider changing their traditional pattern of use of the training evaluations as a mere reactive tool. Moreover the generally training units’ belief that conducting rigorous evaluations” may have everything to lose and nothing to gain from the data, might be changed. Therefore, empirical evidence might be useful for practitioners to replace old. Traditional evaluations’ schemes in lieu of newest predicting training evaluations’ models. This new practice may lead them to make the training investment worthwhile for their organizations.

1.7 RATIONALE OF THE STUDY

In spite of the positive training transfer influence to achieve successfully organizational goals (Baldwin and Burke 1999, Tannenbaum, 1997, Hoekstra and Erik 2003); research in this area suggests that only an estimate as 10 percent of the money spent on training leads to changes in training behavior back on the job (Georgenson 1982, cited by Werner O’Leary-Kelly et al 1994). Even though the 10% transfer rate has been the object of debate, recent studies have demonstrated the lack of opportunity to transfer training on the job (Fitzpatrick 2001, Saks 2002). Supporting this matter, more recently, Newstrom has written, that only 15 percent of the skills

There are important reasons as to find out why the rate of training is low in most organizations. An argument has been pointed out by Molinaro (2003), who states, “One of the main reasons for poor training transfer is that there is still a strong tendency to view training as an isolated event rather than an ongoing process”.

It means that training is not understood as a key strategic tool linked with the organizational challenges of growth and competitiveness. Managers usually place training at the bottom of their priorities. This common practice is negative, because organizational and managerial support is decisive to achieve a higher level of training transfer. Several authors in the area agree that training transfer is improbable to occur despite the best efforts of training designers to develop and deliver excellent training programs, unless the organizations provide an adequate workplace climate to use of trained SKA’s on the job.

1.8 SIGNIFICANCE OF THE STUDY

The major importance of this research lies on its effort to connect two critical issues belonging to the training research field, training transfer and evaluation of training through a created construct, positive training learning and transfer supported by formal evaluation training system. Reliable
measurement of the transfer rate is a key component needed to insure the effectiveness of training program. Methods of training measurement have not advances vary far. Kirkpatrick (1996) was still able to state that, “although many contributions have been made to the literature since 1950s, content has remained basically the same. Alliger (1997) pointed out that, a thorough model of training effectiveness needs to include many more variables than are typically included in the taxonomy of training outcomes criteria, such as the Kirkpatrick model. Some researches and practitioners recognize that most assessments seem to be designed with an inappropriate proposes in mind, which “just may be throwing good money after bad” (Tyler 2000). Spitzer and Conway (2002), stated that “while almost everyone believes that here must be a causal relationship between training and business results, few organizations are able to assess the effectiveness of their training interventions.

In order to deal with the challenge, that how to make training programme in the organization worthwhile is to increase the training transfer and learning rate. The training transfer and learning should create positive impact not only in organization performance and increase productivity, but also it should develop the aspects of employee development and create positive impact on attaining individual goal and team goal.

1.9 SCOPE OF THE STUDY

The Scope of this study is specifically focused on the influence of training evaluation system as predictive tools to modify the training transfer and learning rate, and consequently employee development based on job satisfaction and Training usefulness. The Fundamental purpose of training is to help people develop skills and abilities which, when applied at work, will enhance their average job performance. The Ultimate purpose of training evaluation must be to assess the level of on-job training transfer and learning
and employee development aspects of job satisfaction. In that sense, this study considers transfer and learning of training as the best criterion to demonstrate training effectiveness, since it can produce tangible and intangible training results. In fact, no return on training investment can be calculated if transfer of training does not occur. When training does not transfer it is likely that employees will perceive training to a waste of their time and employers will continue to question the benefit of their investments in it. The study proposed to measure only training transfer and learning based on employee perception and attitude and to identify training usefulness and Employee development.

1.10 OBJECTIVES OF THE STUDY

i) To study the impact of personal profiles of the employees in BHEL towards Training Effectiveness.

ii) To investigate whether Pre-Training, During – Training and Post Training activities are related to transfer of training.

iii) To examine whether Training session, Training Content and Trainer are linked to transfer of learning.

iv) To identify Training usefulness and employee development aspects of Job satisfaction.

v) To formulate a model for Training evaluation in BHEL, Trichy.

1.11 HYPOTHESES

H1: Pre-training activities are positively related to transfer of training.

H2: During-training activities are positively related to transfer of training.

H3: Post –training activities are positively related to transfer of training.
H4: Training sessions are positively related to transfer of Learning.

H5: Training content is positively related to transfer of Learning.

H6: Trainer is positively related to transfer of Learning.

H7: There is positive relation between transfer and learning of training.

H8: Transfer of Training and Learning creates positive impact towards training usefulness.

H9: Training Transfer and Learning are positively related to employee development aspects of job satisfaction.

1.12 METHODOLOGY

It was decided (BHEL) to choose large manufacturing industry in Trichy which intensively train their employee, with separate Training Institute inside the organization. Trainees from BHEL, Trichy were chosen for data collection. The Employees who had got training in the Training Institute of BHEL, Trichy during last six months from November 2012 to April 2013 (1075) were considered as the population of the study. A total of 850 learning and development executives and supervisor participated in the training program. All the executive and supervisors participated in the training were contacted for participation in the study. Upon their consent, questionnaires were given to the respective executives and supervisors. A total of 612 usable responses were obtained by using simple random sampling from the executives and supervisors, which yields 72% of response rate.

1.13 COMPANY PROFILE

Bharath Heavy Electricals Limited (BHEL), Trichy is an integrated power plant equipment manufacturer and one of the largest engineering and manufacturing companies in India in terms of turnover.
bogies, smoothening reactors, exciters, converters, inverters, choppers and associated control equipment, viz. master controllers, chopper controllers, brake and door equipment, electronic controls including software based controls extending to rolling stock and other transport applications. The systems supplied are both with the conventional DC and state-of-the-art AC drives. India’s first underground metro at Kolkata runs on drives and controls supplied by BHEL. Almost all the EMUs in service are equipped with electrics manufactured and supplied by BHEL. BHEL has proved once again its capabilities and technological excellence by successfully establishing itself as an indigenous manufacturer of energy efficient IGBT based propulsion system for AC drives, a landmark achievement in transportation sector. BHEL has also diversified into the area of track maintenance machines and coach building for Indian Railways and undertakes retrofitting and overhauling of rolling stock. Loco manufacturing capacity at Jhansi unit is under augmentation to meet increased requirements of Indian Railways.

1.13.6 Renewable Energy

In conformity with its concern for the environment, BHEL has been contributing to the national effort for developing and promoting renewable energy based products on a sustained basis. Starting from small applications like Solar Powered Street Lighting, Rural Water Pumping Systems, Railway signalling, Offshore Drilling Platforms, etc., BHEL has supplied and commissioned large size stand-alone as well as Gridinteractive Solar Power Plants. With an aim to perform a significant role in National Solar Mission’s proposed target of 20,000 MW of grid connected solar power, BHEL signed an agreement with Abengoa, Spain, a leader in solar projects to provide EPC solutions in Concentrated Solar Thermal Power (CSP) areas. The company is working jointly with IOCL and IIT-Rajasthan for development work of product and systems in the Concentrated Solar Power (CSP) area. A new
Established in 1964, BHEL ushered in the indigenous Heavy Electrical Equipment industry in India - a dream that has been more than realized with a well-recognized track record of performance. The company has been earning profits continuously since 1971-72 and paying dividends since 1976-77. BHEL is engaged in the design, engineering, manufacture, construction, testing, commissioning and servicing of a wide range of products and services for the core sectors of the economy, viz. Power, Transmission, Industry, Transportation, Renewable Energy, Oil and Gas and Defence. The company has 15 manufacturing divisions, two repair units, four regional offices, eight service centres, eight overseas offices and 15 regional centres and currently operates at more than 150 project sites across India and abroad. The company places strong emphasis on innovation and creative development of new technologies. The company has realized the capability to deliver 20,000 MW p.a. of power equipment, enabling to address growing demand for power generation equipment. Our research and development (R&D) efforts are aimed not only at improving the performance and efficiency of our existing products, but also at using state-of-the-art technologies and processes to develop new products. This enables us to have a strong customer orientation, to be sensitive to their needs and respond quickly to the changes in the market.

The high level of quality and reliability of our products is due to adherence to international standards by acquiring and adapting some of the best technologies from leading companies in the world including General Electric Company, Alstom SA, Siemens AG and Mitsubishi Heavy Industries Ltd., together with technologies developed in our own R&D centres. Most of our manufacturing units and other entities have been accredited to Quality Management Systems (ISO 9001:2008), Environmental Management Systems (ISO 14001:2004) and Occupational Health and Safety Management Systems (OHSAS 18001:2007). BHEL, where Quality Systems as per ISO-9000 have
taken deep roots has made significant achievements in the CII Exim Award
ccheme for Business Excellence by securing ‘Commendation for Significant
Achievements in TQM’ for three of its manufacturing units and one power
sector-region during 2011-12.

Continuing its tradition of bagging prestigious National/International awards, the company has been honoured with several awards
which included ‘MoU Excellence Award 2009-10’ as the Top Performing
CPSE in ‘Industrial Sector’; ‘SCOPE Meritorious Award for R&D, Technology Development and Innovation’; ‘NDTV Profit Business
Leadership Award’ for the second year in succession; ‘Golden Peacock
Award for Occupational Health and Safety 2011’& the ‘Golden Peacock
Award for Innovation Management 2011’; three Quality Circles won Gold
Medals for their case studies at the International Quality Circle Conference (ICQCC – 2011) held in Yokohama, Japan; 8 Prime Minister’s ‘Shram
Awards’ including 2 ‘Shram Bhushan’ and 5 ‘Vishwakarma Rashtriya
Puraskars’

Haridwar and Trichy units and Power Sector Eastern region have
recorded an improvement of 5.26%, 5.19% and 7.14 % respectively in
Customer Satisfaction Index as per Customer Satisfaction Survey conducted
in 2011-12 over previous survey establishing company’s sustained
commitment towards quality. As a part of its thrust to ensure cost
competitiveness, the company has successfully completed 32 case studies in
respect of process improvement and cost reduction.

1.13.1 Vision

A global engineering enterprise providing solutions for a better
tomorrow
1.13.2 Mission

Providing sustainable business solutions in the fields of Energy, Industry and Infrastructure

1.13.3 Values

Governance: are stewards of our shareholders’ investments and we take that responsibility very seriously. We are accountable and responsible for delivering superior results that make a difference in the lives of the people we touch.

Respect: value the unique contribution of each individual. We believe in respect for human dignity and we respect the need to preserve the environment around us.

Excellence: committed to deliver and demonstrate excellence in whatever we do.

Loyalty: loyal to our customers, to our company and to each other.

Integrity: work with highest ethical standards and demonstrate a behavior that is honest, decent and fair. We are dedicated to the highest levels of personal and institutional integrity.

Commitment: set high performance standards for ourselves as individuals and our teams and honour our commitments in a timely manner.

Innovation: constantly support development of newer technologies, products, improved processes, better services and management practices.
**Team Work:** work together as a team to provide best solutions and services to our customers. Through quality relationships with all stakeholders we deliver value to our customers.

**Products: Power Generation:** In Power generation segment, BHEL is the largest manufacturer in India supplying wide range of products and systems for thermal, nuclear, gas and hydro-based utility and captive power plants. BHEL has the capability to execute power projects on turnkey/EPC basis from concept-to-commissioning. BHEL supplies steam turbines, generators, boilers and matching auxiliaries up to 800 MW ratings, including sets of 660/700/800 MW based on supercritical technology. BHEL has facilities to go up to 1000 MW unit size. To make efficient use of high ash content coal available in India, BHEL also supplies circulating fluidised bed combustion (CFBC) boilers for thermal plants. BHEL is the only Indian company capable of manufacturing large-size gas-based power plant equipment, comprising of advanced-class gas turbines up to 289 MW (ISO) rating for open and combined-cycle operations. BHEL engineers and manufactures custom-built hydro power equipments. Its range covers turbines of Francis, Pelton and Kaplan runners, pump turbines, bulb turbines and mini-micro hydro plants, with matching generators, for different head-discharge combinations. With realization of enhanced capability, the company is well positioned to capitalise on growing demand for power plant equipment in the country.

BHEL is one of the few companies worldwide, involved in the development of Integrated Gasification Combined Cycle (IGCC) technology which would usher in clean coal technology.

BHEL manufactured sets account for 59% of installed capacity of around 1,80,000 MW in utility sector across the country as of 31.03.2012 and these sets accounted for 69% of electricity generated during 2011-12. During
the XI Plan period, BHEL has commissioned 25,385 MW of Utility sets, nearly double of that contributed during X Plan period. Significantly, the landmark achievement during 2011-12 has been commissioning within a span of just 24 hours of a cumulative capacity of 1,625 MW comprising of thermal and hydro units at various power stations across the country. Another significant achievement was the commissioning of 13 sets of 500 MW during the year against previous high of 8 sets.

1.13.4 Industries

BHEL is a leading manufacturer of a variety of Industrial Systems and Products to meet the demand of a number of industries, like metallurgical, mining, cement, paper, fertilizers, refineries and petrochemicals etc besides Captive / Industrial utilities. BHEL has supplied systems and individual products including a large number of cogeneration Captive power plants, Centrifugal compressors, Drive Turbines, Industrial boilers and auxiliaries, Waste heat recovery boilers, Gas turbines, Pumps, Heat exchangers, Electrical machines, Valves, Heavy castings and forgings, Electrostatic precipitators, ID/FD fans, Seamless steel tubes etc. to a number of industries other than power utilities. BHEL has also emerged as a major supplier of controls and instrumentation systems, especially distributed digital control systems for various power plants and industries. The Industry business sector of the company is fully geared to execute EPC contracts for captive power plants from concept to commissioning.

1.13.5 Transportation

Most of the trains of Indian Railways, whether electric or diesel powered, are equipped with BHEL’s traction propulsion system and controls. The range includes traction motors, traction generators/alternators, transformers, substation equipment, vacuum circuit breakers, locomotive
record has been set by installing 15MWp Grid Interactive Solar Photo Voltaic (SPV) plants across the country. In the context of Jawaharlal Nehru National Solar Mission, BHEL is executing the orders for Renovation and Operation and Maintenance of SPV plants (aggregate 2.15MWp) at various Islands of Lakshadweep.

1.13.7 Oil and Gas

BHEL possesses expertise to design, manufacture and service various types of onshore rigs to suit the Indian service conditions. The range of equipment covers onshore deep drilling rigs, super-deep drilling rigs, helirigs, work-over rigs, mobile rigs and desert rigs with matching draw works and hoisting equipment. BHEL now has the capability to manufacture conventional on shore deep drilling rigs up to a depth of 9,000 meters, mobile rigs to a depth of 3,000 meters and well servicing rigs to a well depth of 6,100 meters. The company is in the process of manufacturing environment friendly AC-technology based oil rings for on shore application.

1.13.8 Transmission

BHEL has significant presence in the field of power transmission in India with a wide range of transmission systems and products. The products manufactured by BHEL include Power transformers, Instrument transformers, Dry type transformers, Shunt reactors, Vacuum and SF6 switchgear, Gas insulated switchgears, Ceramic insulators, etc. Major critical hardware such as capacitor banks, circuit breakers, control and protection equipment and thyristor valves are in its manufacturing range. BHEL has successfully designed, manufactured and commissioned India’s highest voltage Power Transformer of 1200 kV 333 MVA rating at the 1200 Kv National Experimental Substation of PGCIL. The Single Phase Interconnecting Transformer has been developed and manufactured with in-house engineering
and manufacturing technology. BHEL is executing the world’s first + 800KV 6,000 MW Ultra High Voltage Multi-Terminal DC Transmission link between North-East and Agra. The company has developed first 765 kV 80 MVAr single phase Shunt Reactor and emerged as manufacturer of largest Natural Air cooled Dry Type Cast Resin 3-phase, 50Hz Transformer of 15 MVA, 33/6.9 kV rating besides commissioning indigenously developed 36 kV and 145 kV Gas Insulated Substations (GIS). BHEL has the expertise and extensive on-the job exposure for design and applications relating to Power System Studies and Feasibility Studies etc. The Company accepts full project responsibility for feasibility / system studies, execution and commissioning of Fixed Series Compensation/Controlled Shunt Reactor schemes.

1.13.9 International Business

BHEL has, over the years, established its references in 75 countries across all inhabited continents of the world. These references encompass almost the entire range of BHEL products and services, covering Thermal, Hydro and Gas-based turnkey power projects, Substation projects, Rehabilitation projects, besides a wide variety of products like Transformers, Compressors, Valves, Oil field equipment, Electrostatic Precipitators, Photovoltaic equipment, Insulators, Heat Exchangers, Switchgears, Castings and Forgings etc.

The company has been successful in meeting the requirements of international markets in terms of complexity of work as well as technology, quality and other requirements. BHEL has proved its capability to undertake projects on fast-track basis. Continued focus on After-Sales-Services led to orders for Spares and Services from Indonesia, Bhutan, Oman, Malaysia, Bangladesh, Vietnam, Srilanka, Saudi Arabia and UAE during 2011-12. Besides undertaking turnkey projects on its own, BHEL also possesses the requisite flexibility to interface and complement other international
companies for large projects, and has also exhibited adaptability by manufacturing and supplying intermediate products. The company is firmly perched to expand its vista by taking a number of strategic business initiatives to fuel further growth in international business which includes exploration of opportunities in solar energy related projects, equipments and projects in Transmission and Distribution arena.

In International arena, in recent times, the prevailing environment of heightened uncertainties especially in the Euro zone, has also impacted the business prospects of BHEL. The widespread financial instability in Europe and political turmoil in Middle East and North Africa (MENA) region has caused delays in financial closure and project financing, resulting in postponement of finalization of new projects. In spite of such situation, BHEL was able to strengthen its footprint in 21 countries across the globe during 2011-12. The company is poised to maintain its references in the overseas market encompassing almost the entire range of products and services, covering Thermal, Hydro and Gas-based turnkey power projects, Substation projects and Rehabilitation projects, besides a wide variety of products like Transformers, Motors, Compressors, Valves, Electrostatic Precipitators, Photovoltaic equipments, Insulators, Heat Exchangers and Switchgear etc.

1.13.10 Technology Up-gradation, Research and Development

BHEL’s products and systems are technology intensive and the company emphasizes on R&D/technology development in its endeavor to realize its strategic aspiration of becoming engineering conglomerate. Accordingly BHEL pursued the strategy of in-house product development by encouraging innovation in line with the “Decade of Innovations (2010-2020)” declared by Govt. of India. As a major step towards this, the company has updated its R&D policy. Significantly during 2011-12, BHEL invested ₹1,198.82 Crore on R&D efforts – 22% higher than the previous year. BHEL’s
efforts for encouraging innovation have resulted in raising BHEL’s IPR capital tally to 1786 with highest ever IPRs (351 no.) filed during 2011-12. A growth of 26% over last year has been recorded in turnover of ₹ 9,832 Crore from in house developed products and services. BHEL has been ranked the Ninth Most Innovative Company in the world by the renowned US business magazine Forbes. Significantly, BHEL is the only Indian engineering company on the list, and is ranked much higher than similar multinational companies in the power equipment field.

In conformity with engineering and technology objective, the Corporate R&D Division at Hyderabad leads BHEL’s research efforts using emerging technologies to offer state-of-the-art total engineering solutions. Research and product development centers at each of the manufacturing divisions play a complementary role. In order to facilitate advanced R&D activities in focused areas with state-of-the-art facilities and specialized manpower, BHEL has established 13 Centers of Excellence which include eight Centres of Excellence at Corporate R&D Hyderabad. In addition to the existing centres of Excellence for Simulators, Computational Fluid Dynamics, Permanent Magnet Machines and Robotics and Machine Dynamics, BHEL has established four new Centres of Excellence during the year in the areas of Advance Fabrication Technology, Coal Research Centre, Nano Technology application and UHV lab for GIS development. An MoU has been signed with Indian Institute of Science (IISc), Bangalore, covering a broad area of joint research opportunities to facilitate BHEL to engage in collaborative research. This aims at accelerating the pace of development and demonstration of new products, systems and concepts. ‘R&D Advisory Council’ has been formed of eminent scientists and dignitaries from Govt. of India to advise BHEL on R&D strategies for growth and to enable it face the new challenges in the market.
In addition to Corporate R&D Division, BHEL has four specialized Institutes, viz., Welding Research Institute at Trichy, Ceramic Technological Institute at Bangalore, Hydro Lab at Bhopal and Pollution Control Research Institute at Haridwar.

1.13.11 Human Resource Development Institute

Guided by the HRD Mission statement “To promote and inculcate a value-based culture utilizing the fullest potential of Human Resources for achieving the BHEL Mission”, the HRDI through a step by step strategic long term training process and several short term need based programmes based on comprehensive organisational research, enables the human resources to unearth and hone their potential.

In line with changing market requirements, the knowledge and skills of BHEL employees are continuously upgraded. In a major advancement, an integrated Human Resource Management system was implemented which aims at reaching out to the internal stakeholders on real time basis and redefining the role of HR functions as a strategic partner in business, through process standardization, optimization and seamless enterprise integration. As a part of this process, competency mapping and assessment of behavioral competencies for select level has been completed in EDN, Bangalore and Jhansi and Power Sector Western region and Power Sector Eastern region during 2011-12.

During 2011-12, HRDI has prepared and implemented Learning modules for Boiler and Turbine for new entrants and trained 2000 workmen. Some of the Core programs conducted include Strategic need based programmes; Competency based programmes and Functional Programmes like Advanced Management Programmes, General Management Programmes, Strategic Management Programmes, Senior Management Programmes,
Middle Management Programmes, Young Managers Programmes and self starter programs for budding managers. In a bid to enhance participation of Minorities, 24.2% of minorities were nominated for skill and competency development programs during the year.

In addition, the HRDI provides professional support to Corporate HR and HRDCs at Units/Divisions. HRDI is also accepting consulting assignments from other organisations in a selective manner.

1.13.12 Health, Safety and Environment Management

BHEL’s commitment towards environment is reflected in all its activities, products and services, providing safe and healthy working environment to all stakeholders. In conformity with its commitment towards environment conservation, the company has taken up a number of Environment Improvement Projects (EIPs). These projects helped in enriching the environment, conservation of precious resources like energy, water, fuel oil, coolant, lubricant, mitigating environmental pollution. As a part of major EIP projects during 2011-12, the company has planted 27,545 trees and successfully completed the Water harvesting project in EPD Bangalore unit for Slip house ball mill building. Further, in keeping with the commitment to use renewable power in units, the company has installed Solar Street lighting in and around ISG building in Bangalore; PV panel module on rooftop of PCB building in EDN, Bangalore and Emergency Solar lighting at the main receiving stations at HPEP Hyderabad during 2011-12. In bid to ensure green supply chain, Study of Supply Chain Management was completed at Hyderabad unit. Energy audit was completed in Insulator Plant, Jagdishpur; EPD, Bangalore and HPEP Hyderabad units.

BHEL has been actively developing and acquiring clean technologies for power generation enabling its customers to minimize the
impact of power generation on the environment. Reinforcing its commitment to optimum utilization of natural resources as well as its concern for the environment, BHEL has developed dynamic classifier system to improve combustion efficiency of boiler and reduction of NOx emission. The company has taken up Clean Development Mechanism (CDM) projects to reduce greenhouse gas emissions in a more focused and vigorous way. Under the aegis of the National Mission on Clean Coal Technology, BHEL, in association with IGCAR, NTPC and other organizations, is developing Advanced Ultra Supercritical Technology. In conformity with Green energy initiative, an energy efficient largest single cylinder non-reheat steam turbine for 100-140MW application has already been developed to harness waste heat. BHEL supplied Space Grade Solar Panels totaling to 221 sq. mtrs. in area are in use for various satellites of ISRO. The company won the prestigious ‘Golden Peacock Award for Occupational Health and Safety 2011’ for significant achievements in the field of Occupational Health and Safety.

1.13.13 Corporate Social Responsibility

BHEL has developed a CSR scheme and its Mission Statement on CSR is “Be a Committed Corporate Citizen, alive towards its Corporate Social Responsibility”. BHEL has adopted a CSR Policy in line with the CSR Guidelines issued by Department of Public Enterprises. Fostering the tradition of repaying the society at large by actively participating in the welfare of local communities through numerous Corporate Social Responsibility initiatives, BHEL undertakes socioeconomic and community development programmes to promote education, improvement of living conditions and hygiene in villages and communities located in the vicinity of its manufacturing plants and project sites spread across the country. Thrust is being given in eight areas- Self employment generation, Environment protection, Community
development, Education, Health management and medical aid, Orphanages and Old-age Homes, Infrastructural development and Disaster/Calamity Management. In addition, BHEL provides financial assistance to various NGOs/Trusts/Social Welfare Societies that are engaged in social activities throughout the country. Reaching out to the distressed victims in the earthquake-ravaged areas of Sikkim, BHEL has made a humble contribution to help alleviate their suffering during 2011-12. During 2011-12, as part of social commitment, 7,941 Act Apprentices were trained in the company. In addition, 8,419 students/trainees from various professional institutions underwent vocational training.

1.14 STRUCTURE OF THE DISSERTATION

The structure of this dissertation is a five-chapter format. The introduction chapter describes, among other things the topic, problem statement, Purpose, Rationale, Significance, scope, objectives, hypothesis and methodology and Company profile for this study. Chapter 2 is a review of the literature and is segregated along the areas to be examined within the data pre-training, during training and post training, training transfer and learning and training usefulness. Chapter 3 provides a conceptual framework, a rational for the methodology chosen, the statistical tests to be performed to reduce the risk of error, and a description of the methodology to be used in the study. Chapter 4 documents the results of the analysis performed and provides interpretation from this information. Finally, chapter 5 provides a summary of the information (findings and suggestions) makes recommendations for further research.