Chapter III

Conceptual Framework of E-Learning Process & Profile of IT Companies in Chennai
Chapter - 3

Conceptual Framework of E-Learning Process & Profile of IT Companies in Chennai

Introduction

The chapter deals with E-Learning process in training and development and what are all the technical terms that are used in E-Learning process. IT companies in Chennai city, IT’s growth at India level, Tamil Nadu Level, relationship between E-Learning & Training and development process, HRD Practices in IT Companies, are discussed.

Meaning of E-Learning

The advancement of information technologies has contributed to the exponential growth in corporate e-learning (or e-training) in recent years. This revolution enables employees to obtain an intimate learning experience without attending a brick-and-mortar facility. As organizations strive to enhance their competitiveness by constantly promoting continuous learning culture, online training continues to grow in popularity, as organizations strive to better meet their immediate and strategic needs for a flexible, well-trained workforce (Kosarzycki et al., 2002).

The term ‘e-learning’ ‘e’, with regard to e-learning, obviously stands for electronic. Electronic learning can take many forms, and consequently there has been some debate about what can legitimately be covered under such a term. A wider discussion on the use of the term e-learning can be found in Pollard and Hillage (2001)
‘The delivery and administration of learning opportunities and support via computer, networked and web-based technology to help individual performance and development.’ (Pollard and Hillage, 2001).

**Adoption of E-learning**

Many organizations have led firms and corporations to take e-learning initiatives to train their workforce. Training is needed whenever a gap between one’s expertise and one’s work requirements is identified (Bagnasco et al., 2003). In this era, the economy is naturally driven by human capital and knowledge, as opposed to just physical capital, as in the past (Sampson et al., 2002). Some authors argue that demands such as personalized training schemes suited to the individual’s needs, just in-time training and a cost effective approach to training is a globally dispersed workforce, encourage the development of e-learning as an attractive alternative to traditional training (Sampson, 2001; Newton and Doonga, 2007). Urdan and Weggen (2000) strengthen the argument that businesses are transforming and knowledge rapidly becomes obsolete, there is a strong need for a new learning platform that supports just-in-time training while being cost effective at the same time.

Furthermore, E-Learning has also gained strategic importance due to the migration towards value chain integrations and extended enterprises (Mcrea, Gay and Bacon, 2000). Similarly, according to Werner (2003), a key success strategy is the need to develop an e-learning strategy that ties in with the overall business strategy. It becomes clear that e-learning could be a significant element of corporate strategy. In addition, Figgis et al. (2001) state that training and learning are more and more
considered as creating competitive advantages for businesses. Cisco also claims that “The key to gaining a competitive advantage is the ability to, rapidly disseminate the information and training”. It seems logical that in order to survive, firms and organizations need to prepare to catch up with the dynamic changes and knowledge which must be constantly updated, as Bagnasco et al. (2003) say that the challenge is to manage against fast obsolescence of technical skills and to let workers acquire expertise in new topics, just in time to face changes in working practices. This coincides with our purpose of exploring the role of e-learning in organizations.

The small enterprises face some obstacles to implement e-learning. The first obstacle is that these enterprises presume that an e-learning platform is to have higher maintenance costs. Sometimes, they face the issue of compatibility, as they do currently possess the required technological infrastructure that supports the system of e-learning. Bagnasco et al. (2003) suggest that the buy-in of e-learning may be more suitable for small firms, giving examples such as the HP educational service. The smaller enterprises could purchase per usage of the service and do not waste time and money to develop a full platform with them. Kapp and Felice (2003) see partnerships as a way for smaller enterprises to acquire e-learning opportunities at a lower cost, but in order for such partnerships to be effective, third party facilitation is usually required (Sloan Consortium, 2003).

E-learning in Different Corporate Settings

It is interesting to note that e-learning could be practiced virtually in any organization of any size of the big players such as Wipro, Infosys and Satyam. The
small to medium enterprises have also used these training in their organization. However, the implementation of e-learning seems to be different among companies of different sizes. The most important feature of these smaller companies is that they are highly dependent on their limited workforce and thus e-learning benefits them in terms of lower delivery costs, on-site training which does not affect the level of productivity and provides the flexibility of the training schedule (Hamburg and Lindecke, 2005).

**Training and development**

Training has now been developed as an important means of Human Resource Management to control the turnover of employees as it helps in motivating employees by suggesting those means to achieve their professional and personal goals. Karthik R (2012) opined that training objectives tell the trainee that, what is expected out of him at the end of the training program. Training objectives are of great significance from a number of stakeholder perspectives; Trainer, trainee, designer, evaluator. Sailer, Holton III, Bates, Burnett and Carvalho (1998) highlighted that in the continuous changing scenario of the business world, training is an effective measure used by employers to supplement employees’ knowledge, skills and behavior. Further Tan, Hall and Boyce (2003) highlighted that companies are making huge investment on training programs to prepare them for future needs.

Understanding the phenomenon of employee training and development requires understanding of all the changes that take place as a result of learning. As the generator of new knowledge, employee training and development is placed within a
broader strategic context of human resources management, i.e. global organizational management, as a planned staff education and development, both individual and group, with the goal to benefit both the organization and employees. To preserve its obtained positions and increase competitive advantage, the organization needs to be able to create new knowledge, and not only to rely solely on utilization of the existing.

Therefore, the continuous employee training and development has a significant role in the development of individual and organizational performance. The strategic procedure of employee training and development needs to encourage creativity, ensure inventiveness and shape the entire organizational knowledge that provides the organization with uniqueness and differentiates it from the others.

The continued need for individual and organizational development can be traced to numerous demands, including maintaining superiority in the marketplace, enhancing employee skills and knowledge, and increasing productivity. Training is one of the most pervasive methods for enhancing the productivity of individuals and communicating organizational goals to new personnel.

**Relationship between E-learning and training and development**

Employee training and development requires understanding of all the changes that take place as a result of E-learning. As the generator of new knowledge, employee training and development is placed within a broader strategic context of human resources management, global organizational management, as a planned staff education and development, both individual and group, with the goal to benefit both the organization and employees. To preserve its obtained positions and increase
competitive advantage, the organization needs to be able to create new knowledge, and not only to rely solely on utilization of the existing. (Beograd, 2003)

The continuous employee training and deployment has a significant role in the development of individual and organizational performance. The strategic procedure of employee training and development needs to encourage creativity, ensure inventiveness and shape the entire organizational knowledge that provides the organization with uniqueness and differentiates it from the others.

E-Learning is no longer the duty and privilege of those in higher positions and skilled labour, but it is becoming the duty and need of everyone. The larger the organizations, the more are the funds they spend on education and provide their employees with greater and diverse possibilities of education and development. Understanding the tremendous significance of E-Learning for the modern organization and confidence, that it represents a good and remunerative investment, present day organizations set aside more and more resources for this activity.

The only way for present day organizations to survive is the imperative to innovate or perish. Since this depends on the knowledge, the organization possesses, this imperative could be read as: learn faster than the competition. The logical sequence is knowledge creation – innovation – competitive advantage. The knowledge is very important for each and every individual in their organizations. Many organizations which consider knowledge as a good thing are trapped into the pitfall of gathering as much knowledge as possible.
It is not about knowledge for the sake of knowledge, but rather knowledge according to the needs, applicable knowledge, knowledge to create innovation and competitive advantage. (Novi Sad, 2006) Obtaining knowledge, learning, education, all could have a real effect on the quality of labour, only if they are harmonized with the needs of a particular organization, its goals of the employees.

Employee training and development does not imply only obtaining new knowledge, abilities and skills, but also the possibility to promote entrepreneurship, introduce employees to change, encourage the changes of their attitude, introduce the employees to important business decisions and involve them actively in the process of decision making. (Novi Sad, 2006).

The most wanted resources are the people with particular knowledge, skills and abilities. Managers must learn to manage them, and the organizations to employ and retain them. Knowledge based organizations must preserve their competitive advantage by retaining a skilled workforce, worker’s knowledge, strengthening their motivation and improving the reward and compensation systems according to the workers' performances. The context of learning organization is not sufficient for the worker only to add value to the organization based on his knowledge. For the present day employees the wage itself is not a sufficient incentive, but they also need investment in themselves, in the sense of investing their knowledge. Employees are not working longer for money alone, nor can they be influenced by traditional attractive financial packages.
Impact on E-Learning in Training and Development Process

The procedures of employee training and development within our organizations are undeveloped. They are mainly performed occasionally, and not connected with organizational strategy, nor do they have some strategic significance. They are mostly enforced, when such business problems occur or perceived that are considered relievable or solvable by organizing a training, course or seminar for some of the employees. Employees view the training as an imposed obligation, rather than a way to maximize their potential and they do not realize that by improving their performances and innovation of their knowledge they may contribute to better business results of the organization they belong to. The top managers do not realize this as well. From their relationship with the employees it is plain to see that the employees are still treated as an expense, rather than an investment worthy of investing.

Many of the managers are under the influence of prejudice such as training is expensive, training is an expense burdening the current business, it is not rewarding and training is for the young. Knowledge is expensive, but ignorance is even more expensive. Human possibilities to learn are unlimited, unless individuals do not limit their abilities within their minds. Many studies have shown that investing in employee training and development has larger business effects than investing in equipment and other material resources. Organizations must harmonize their approach to employee development with the changes. Employee training and development has to be connected with the organizational goals and strategy, they need to fulfil the new requirements of the environment. Employee training and development needs to
become a managerial function. The managerial challenge to consider the employees of the organization from a strategic perspective and constantly monitors and encourage the development of new skills and knowledge, as the foundation of organizational development.

The process of democratization, transitions, opening towards the EU, privatizations and the arrival of foreign companies and Praxis contributed considerably to the transformation of approach to employee training and development within the organizations, from the ad hoc processes that originate from the goals and strategies, to a modern approach where human resources and their knowledge are gaining more and more significance.

**Difference between Training and Development**

Measuring the effectiveness of training and HRD, it is necessary to point out their similarities and differences with respect to improve management skill. Training is generally regarded as a subset of HRD. Training can be referred to as a structured learning experience. Training activities such as seminars and workshops are normally centered on improving specific skills, whereas HRD concentrates on the improvement of all the necessary skill required by the employees of an organization to be effective. However, training is regarded as a tool for HRD, on the other hand, training can be regarded as a short term activity and HRD is regarded as having a long term horizon. Meanwhile, they can be defined differently, but their goal and objectives are the same, their activities tend towards enhancing employees knowledge and skill for effective performance.
Organizations, whether private sector or public sector, are generally agreed that training and development is very critical to the growth and development of the core activities in which the organizations engage. (Noe, 2002)
It is apparent that the term 'training' is not simply organizing classroom sessions, but it is more than that. This process can help the people to identify the role of the personnel, responsible for organizing training and implementing the training policy.
Organizations face enormous difficulty in trying to achieve successful training programs in the use of IT. Davis (1989) identified two constructs, as relevant to user acceptance of technology, namely Ease of Use (EOU) and Perceived Usefulness (PU). These constructs are operationalized into a set of principles to underpin the training program which is delivered in two phases, each specifically addressing one of Davis’ constructs. The evaluation of the success of the program will be determined through surveys and in-depth interviews with the participants and it is intended that the final framework will add some ‘thick description’ and further elaborates the original constructs.
Baldwin and Ford (1988) presented a model of the transfer process which includes training inputs, training outputs and conditions of transferring Training inputs are thought to influence the conditions of transfer, both directly, and indirectly, through their impact on training outputs. In line with this model, they will identify the
training inputs, that have proven to be highly crucial for learning, retention, generalization and maintenance of targeted skills, and will organize them into three main categories: trainee characteristics (cognitive ability, self-efficacy, motivation and perceived utility of training), training design (behavioural modelling, error management and realistic training environments) and work environment (transfer climate, support, opportunity to perform and follow-up).

**Models for Training Evaluation**

There are different models to evaluate training, still training evaluation is the weakest and most underdeveloped aspect of training. There are number of issues which lead to ignorance of evaluation as well as faced in the course of evaluation. It causes expenses that can be ill afforded in a constrained financial area and also it takes time to practice (Iyer, 2009). There are several reasons for underdeveloped evaluation. They are, evaluation means different things to different people, it is perceived to be difficult, tedious and time consuming task which trainers do not like to pursue, people tend to assume the training will simply work, trainers feel threatened by the prospect of an objective evaluation of training and its outcome (Sims, 1993). Scholar states that the main reasons for failure of evaluation are inadequate planning, lack of objectivity, evaluation errors of some sort, improper interpretation and inappropriate use of results. Other issues are failure to train the evaluators on the techniques of evaluation, inappropriate data gathering instrument and focus on unimportant details.
Different models are used by organizations to evaluate training effectiveness according to the nature and budgets of the business. Some of the commonly used models are as follows.

A. **Kirkpatrick Model**: This model has been introduced in 1959 by Donald Kirkpatrick. This is a very popular model that focuses on measuring four kinds of outcomes, or it can be said that outcomes in four levels, that should result from a highly effective training program. Kirkpatrick (1977) divided the evaluation model into four parts: reaction; learning; behaviour and results. Reaction would evaluate how participants feel about the program they attended. The learning would evaluate the extent to which the trainees learned the information and skills, the behaviour would evaluate the extent to which their job behaviour had changed as a result of attending the training. The results would evaluate the extent to which the results have been affected by the training program. According to a survey by the American Society for training and development (ASTD), the Kirkpatrick’s four level evaluation approach is still the most commonly used evaluation framework among Benchmarking Forum Companies *(Bassi & Cheney, 1997)*. The main strength of the Kirkpatrick evaluation approach is the focus on behavioural outcomes of the learners involved in the training *(Mann & Robertson, 1996)*.

The detailed examination of the above mentioned model is as follows:

**Reaction level**: Program evaluation involves two general approaches – Formative evaluation also known as internal and summative evaluation, also known as external
evaluation. Likewise reaction evaluation is a type of formative evaluation when the results are used for program modification and the redesign of contents, course material and presentations (Antheil & Casper, 1986; Robinson & Robinson, 1989). Reaction can also be summative in nature. In such cases, the goal of reaction evaluation is to determine the value, effectiveness or efficiency of a training program (Smith & Brandenburg, 1991) and to make decisions concerning program continuation, termination, expansion, modification or adoption (Worthen & Sanders, 1987). Summative evaluation provides program decision makers and potentials customers with judgments about a program’s worth or merit (Worthen, Sanders & Fitzpatrick, 1997).

The main purpose of reaction evaluation is to enhance the quality of training programs, which in turn leads to improved performance by measuring the participant’s reactions to training program. This should be measured immediately after the program. Level one evaluation should not just include reactions towards the overall program. But it should also include measurement of participant’s reactions or altitudes towards specific components of the program such as, the topics, contents, methodology and instructor.

**Learning level:** Evaluation at this level wants to differentiate between what they already knew prior to training and what they actually learned during the training program (Jeng & Hsu, nd.). In other words it can be said that learning evaluation is the measurement of the increase in the knowledge or intellectual capability from before to after, the learning experience. Learning outcome can include changes in knowledge, skills or attitudes. Some training events will emphasize knowledge, some will
emphasize skills, some will emphasize attitudes and some will emphasize multiple learning outcomes. The Evaluation should focus on measuring what is covered in the training events and learning objectives. This level’s questions will have a pre test before practicum and a post test after practicum. Tools and methods which can be used in evaluating learning levels are assessment or tests before and after the training, interviews or observations can be used before or after, although this is time consuming and can be inconsistent.

**Behaviour level**: Behaviour evaluation is the extent to which the trainees applied the learning and changed their behaviour, and this can be immediately or several months after the training, depending on the situation. This level evaluation needs to measure the transfer that has occurred in the learner’s job behaviour / job performance due to the training program. This performance testing is to indicate the learner’s skill to apply, to learn in the classroom. It involves testing the participant’s capabilities to perform learned skills while on the job, rather than in the classroom. Change in the job behaviour is difficult to measure because people change in different ways at different times and also it is difficult to quantify and interpret than reaction and learning evaluation. Observation and interviewing overtime are required to assess change, relevance of change and sustainability of change in behaviour of the participants. The opinion of the trainees in the form of self – assessment, 360 – degree feedback are useful method to evaluate this level.

**Result level**: Result level evaluation is the effect on the business or environment resulting from the improved performance of the trainee. Level four outcomes are not limited return on training investment (ROI). It can also include others major results
that contribute to the well functioning of an organization, it includes any outcome that the most people would agree as “good for the business”. Outcomes are either changes in financial outcomes (such as positive ROI or increased profits) or changes in the variables that should have a reliability and direct effect on financial outcome at the same point of the future.

The intention at this level is to assess the cost vs. benefits of training program, organizational impact in terms of reduced costs, improved quality of work, higher productivity, reduction in turnover, improved human relations, increased sales, fewer grievances, lower absenteeism, higher work morale, fewer accidents, greater job satisfaction. Collecting, organizing and analyzing level four information can be difficult, time consuming and more costly than the other three levels, but the results are often quite worthwhile when viewed in the full context of its value to the organization.

B. **CIPP Evaluation model**: CIPP model of program evaluation is developed by Daniel L. Stufflebeam (1983). It refers to the four phases of evaluation: context evaluation, input evaluation, process evaluation and product evaluation. It is based upon the view that the most important purpose of evaluation is to improve the functioning of a program.

**Context evaluation**: It involves evaluation of training and development needs, analysis and formulating objectives in the plight of these needs. It is aimed at determining the extent to which the goals and objectives of the program matches the assessed need of the organization, whether needs assessment is accurately identified as
an actual and legitimate need of an organization and relevant work culture. Context evaluation is the part and parcel of the work undertaken by employees of an organization.

**Input Evaluation:** Input evaluation involves an examination of the intended content of the program. It is designed to assess the extent to which program strategies, procedures, and activities support the goals and objectives identified in the needs assessment and context evaluation. An input evaluation is therefore an assessment of the programs action plan. Such an evaluation helps in prescribing the specific activities and strategies and procedures, to ensure that it has been chosen the best approach in terms of the assessed needs and goals and objectives that has been identified. It involves evaluation of determining policies, budgets, schedules and procedures for organizing program.

**Process Evaluation:** A process evaluation is the critical aspect of program implementation. It involves evaluation of preparation of reaction sheets, rating scales and analysis of relevant records (Prasad, 2005). Process evaluation is a continual assessment of the implementation of the action plan that has been developed by organization. It is an ongoing and systematic monitoring of the program. A process evaluation provides information that can be used to guide the implementation of program strategies, procedures and activities as well as a means to identify successes and failures. The objectives of process evaluation are
• To provide feedback to organization and their employees about the extent to which the activities are on schedule, are being carried out, as planned using time and resources in an efficient manner.

• To provide guidance for modifying or explicating the programs action plan as needed, particularly since not all aspects of the plan can be anticipated or planned in advance.

• To assess periodically the extent to which programs personnel are performing their rules and carrying out their responsibilities.

• To provide an extension record of the programs, how it was implemented and how it compares to what was intended.

**Product evaluation:** It involves measuring and interpreting the attainment of training and development objectives. In other words it can be said that the purpose of product evaluation is to measure, interpret and judge the extent to which an organization’s improvement efforts have achieved their short term and long term goals. It also examines both intended and unintended consequences of improvement efforts.

C. **CIRO approach:** In 1970, the CIRO model for the evaluation of managerial training was proposed (Warr, Bird & Rackson, 1970). This model is based on the evaluation of four aspects of training: context, input, reaction and outcomes. According to Tennant, Boonkrong and Roberts (2002), the CIRO model focuses on measurement, both before and after the training is carried out. The main strength of the CIRO model is that the objectives (context) and the training equipment (input) are considered. Context Evaluation focuses on factors such as the correct identification of training needs and the setting of objectives in relation to the organization’s culture and
climate. Input evaluation is concerned with the design and delivery of the training activity. Reaction evaluation looks at gaining and using information about the quality of training experience. Outcome evaluation focuses on the achievement gained from the activity and is assessed at three levels: immediate, intermediate and ultimate evaluation. Immediate evaluation attempts to measure changes in knowledge, skills or attitude before a trainee returns to the job. According to Santos and Stuart (2003) intermediate evaluation refers to the impact of training on the job performance and how learning is transferred back into the workplace. Finally, ultimate evaluation attempts to assess the impact of training on departmental or organizational performance in terms of overall results.

**D. Phillip's Evaluation approach:** In the past decade, training professionals have been challenged to provide evidence of how training financially contributes to business. Phillips (1996) suggested adding another level to Kirk – Patrick’s four level evaluation approach, to calculate the return on investment (ROI) generated by training. According to James and Roffe (2000), Phillips’s five level evaluation approaches translate the worth of training into monetary value which, in effect addresses ROI. Philips framework provides trainers a logical framework to view ROI both from human performance and business outcomes perspectives. However, the measurement goes further, comparing the monetary benefit from the program with its costs. Although the ROI can be expressed in several ways, it is usually presented as a percent or cost/benefit ratio. While almost all HRD organizations conduct evaluations to measure satisfaction, very few actually conduct evaluations at the ROI level, perhaps because ROI is often characterized as a difficult and expensive process.
Since Kirkpatrick established his original model, other theorists and indeed Kirkpatrick himself, have referred to fifth level, namely ROI (Return on Investment). But ROI can easily be included in Kirkpatrick’s original fourth level result. The inclusion and relevance of the fifth level is therefore arguably relevant, if the assessment of return on investment might otherwise be ignored or forgotten when referring simply to the Result level.

There are some other training approaches and models. As it has been discussed earlier that training evaluation itself is less touched part of training and development, these methods have theoretical side but less in practical application. So these models are not discussed in detail. These are: Training Validation System (TVS) approach (Fitz-Enz, 1994), Input, Process, Output/ Outcome (IPO) Model (Bushnell, 1990), Hassett’s training investment analysis approach; Kaufman’s five level evaluation model, Mahapatra and Lai (2005) and Sadri and Synder (1995).

Hassett’s training investment analysis approach focuses on the four important areas and measures the training effectiveness. Need analysis, information gathering, analysis and dissemination are the four focused areas. Kaufman’s five level evaluation models extends the scope of training impact evaluation beyond the organization, it includes how training benefits the society and the surrounding environment in the organization.
Table 1: **Kaufman’s five-level Evaluation**

<table>
<thead>
<tr>
<th>Level</th>
<th>Evaluation Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.a. Enabling</td>
<td>Quality input availability like; human, financial and physical resources</td>
</tr>
<tr>
<td>1.b. Reaction</td>
<td>Methods, means and process acceptability and efficiency</td>
</tr>
<tr>
<td>2. Acquisition</td>
<td>Individual and small group mastery and competency</td>
</tr>
<tr>
<td>3. Application</td>
<td>Individual and small group utilization within the organization</td>
</tr>
<tr>
<td>4. Organisational Output</td>
<td>Payoff to the organization</td>
</tr>
<tr>
<td>5. Societal Outcomes</td>
<td>Payoff to the society</td>
</tr>
</tbody>
</table>


Mahapatra and Lai (2005) stated that end user training can be evaluated at five levels. The five levels are; technology, reaction, skill acquisition, skill transfer and organizational effect. In assessing change that occurs after a period of training, researchers may tap one or all of three conceptually different kinds of change: alpha, beta and gamma (Sadri and Synder, 1995). In alpha change, the participant’s report of change is unbiased between time one and time two (the pre- and-post-ratings) because it is based on an instrument that has been continuously calibrated. Beta change refers to an apparent change where the measuring instrument has been recalibrated by the participant during the measurement intervals, i.e. individual perceptions of the response scale have changed. Gamma change refers to a situation where the participant redefines or re-conceptualises some relevant information (Iyer at. el., 2009).
Training and development in IT industry

Today’s diversified workforce in knowledge-based industries witnesses its evolving job demands and its changing skills and knowledge that are quite different from manufacturing industries. Today’s society is going behind in an information revolution and the goal is not to train workforce to adapt to existing jobs, rather the goal is to enable the workforce to adapt to changing jobs. Today’s IT service companies have downsized and flattened organizational structures and they have fewer middle-level managers. The IT professionals are more autonomous and the work environment itself is more exciting than other industries. Jobs descriptions tied to narrowly defined tasks become almost obsolete. Individual professionals are very quality conscious and they know that quality is a key to sustain in the competitive global marketplace. These individual professionals need to be more responsive, faster at innovation, flexible and highly trained.

The way to respond to the demands of change is to create a learning organization. In the learning organization, the organization itself learns not only from its former errors but also from its past successes. In the learning organization, the rewards for success are high and the risks of failure are low, thus encourage people to try something new, something innovative. In the learning organization, individuals are empowered to do their jobs well and creatively. Individuals with this freedom are more committed to their jobs, take more initiative, and have a broader sense of responsibility in their work.
Creating learning organization mandates; IT service companies invest a substantial amount to training and development function. Sometimes IT service companies impart high-end training to their key personnel, which cost them a portion of their revenues. This phenomenon also recognizes the IT professionals as high-worth human capitals. The organizations measure the return on investments (ROI) for training and development function not only from the viewpoints of revenues earned, but also from viewpoints of the rate of retention and rate of attrition. If the high-worth human capitals cannot be retained on long term basis, the particular company may have pessimistic impact on revenue earning and company image’s to the clients.

Training facilitates development in the perspectives of individuals as well as in the perspectives of the company. Individuals acquire knowledge and skills to be in forefront of the designing or implementing teams. Their knowledge and skill sets would become in much demand within the industry, so the individuals are going ahead in their career after training, along with the experience. Sometimes, acquired skills and knowledge become so precious, companies tend to retain these individuals and create space for growth across careers. Training leads the company in achieving clients’ confidence through quality products and services.

The latest development in the technological landscapes can be incorporated into clients’ systems. This way, clients can fulfil their organizational goals and objectives after implementing the systems. Training in the IT service industry is one of the essential functions that require focused strategies and policies. The IT companies want to create corporate culture in training and development in achieving organizational excellence. They undertake training needs assessment (TNA) process
on regular basis. TNA means searching out and discovering who, in the organization needs to learn what and with what priority. The questions that must be asked for the people in an organization, to identify learning needs must begin with business plans and projects and ideas about strategic direction. TNA requires a systematic approach to identify what the professionals of an IT service company need to learn in order for the company to achieve its goals. In most of the IT companies individual professionals have to develop their skill sets as and when needed. In some companies, individual professionals participate in training programmes on regular.

Companies provide various kinds of training to individual professionals, like induction training, soft-skills development training, IT skills development training, quality assurance training, managerial skills development training. There are classroom training, on-the-job training, computer-based training (CBT), web-based training (WBT) and other training methodologies that are adopted across the organizations. But in India, classroom training and on-the-job training are more popular. CBT and WBT are e-learning methods, which are becoming popular in IT service companies.

Some training programmes are conducted within the organization involving either internal trainers or external trainers or mixed of them. This is again conducted within a region or within the country or in a global office located abroad. Some big IT service companies in India have established training institutes for their respective organizations. Some of them are: Infosys Leadership Institute (Infosys Technologies), Tata Management Training Centre (Tata Consultancy Services), Wipro Academy of
Software Excellence (Wipro Technologies), Relnis Academy (Reliance Info Comm), Cognizant Academy (Cognizant Technology Solutions).

Most of them are engaged in providing training not only on core IT skills, but also on managerial skills to make the respective companies achieving their long-term objectives. These training centres conduct tailor-made training programmes appropriate for the organizational requirements. Some IT companies organize training programmes through external training centres. These centres conduct training courses on behalf of these IT service companies adopting industry standards and engaging expert trainers. They sometimes conduct international certification programmes for specific skill sets, like, Oracle Certification, Microsoft Certification, Sun Certification, etc. Sometimes the IT service companies sponsor their professionals into short-term training courses and management development programmes conducted by reputed institutions, like, Indian Institutes of Technology (IITs), Indian Institutes of Management (IIMs), Indian Institutes of Information Technology (IIITs), National Institutes of Technology (NITs), etc. This way companies facilitate overall development and growth of the organizations and create new leaders to face the challenges in the competitive global marketplace.
The following is the proposed research model prepared by the researcher in order to find out the effectiveness of E-Learning on training and development process.

**Source: Primary Data**

**Information Technology Industry in India**

The Indian information technology industry has played a key role in putting India on the global map. Thanks to the success of the IT industry, India is now a power to reckon with. According to the National Association of Software and Service Companies (NASSCOM), the apex body for software services in India, the revenue of the information technology sector has risen from 1.2 per cent of the gross domestic product (GDP) in FY 1997-98 to an estimated 5.8 per cent in FY 2008-09.
India's IT growth in the world is primarily dominated by IT software and services such as Custom Application Development and Maintenance (CADM), System Integration, IT Consulting, Application Management, Infrastructure Management Services, Software testing, Service-oriented architecture and Web services.

The government expects the exports turnover to touch US$ 80 billion by 2011, growing at an annual rate of 30 per cent per annum, from the earlier few million dollars worth exports in early 1990s.

As per NASSCOM's latest findings:

1. Indian IT-BPO sector grew by 12 per cent in FY 2009 to reach US$ 71.7 billion in aggregate revenue (including hardware). Of this, the software and services segment accounted for US$ 59.6 billion.

2. IT-BPO exports (including hardware exports) grew by 16 per cent from US$ 40.9 billion in FY 2007-08 to US$ 47.3 billion in FY 2008-09. Moreover, according to a study by Springboard Research, the Indian IT services market is estimated to remain the fastest growing in the Asia-Pacific region with a CAGR of 18.6 per cent.

Despite the uncertainty in the global economy, the top three IT majors—Infosys, TCS and Wipro—have seen revenue growth from all important sources of income: from the North American and European regions, in the financial services vertical and from application maintenance and development (ADM) offerings between fiscal years 2008 and 2009.
IT-BPO sector has become one of the most significant growth catalysts for the Indian economy. In India’s economy, this industry is also positively influencing the lives of its people contributing to the various socio-economic parameters such as employment, standard of living and diversity among others. The industry has played a significant role in transforming India’s image from a slow moving bureaucratic economy to a land of innovative entrepreneurs and a global player in providing world class technology solutions and business services. The industry has helped India to transform from a rural and agriculture-based economy.

India’s information technology (IT) industry is the jewel in the crown of its new economy while the economy has a overall growth in steadily since the onset of liberalisation in 1991 averaging a real rate of growth about 6 %, the newer sector of IT has grown spectacularly at well over 20%. Some sub-sector has grown close to 60%. Though the IT employment base accounts for a very small proportion of India workers, it is developing rapidly. Indian IT has been the single biggest reason for Indians recent balance of payment surplus, its burgeoning foreign exchange reserves and the increasing attention it receives in the international media.

The Indian information technology sector is conventionally partitioned in three broad categories or sub-sector of these IT services and software accounts for the greater portion of total revenue. The sub-sector includes IT enable services (ITES) and business process Outsourcing (BPO). Companies in this category offer services not directly related to the provision or maintenance of IT products, but which do rely on IT products to deliver their value. This category include services “off- Shored” or “outsourced” from other parts of the world typically an administrative component of a
large scale company, such as customer support, technical assistance, human resource information provision or accounting. Other outsource services include finance services such as market analysis, equity research and fund management, as well as technical services such as medical diagnosis and legal transcription. Though ITES – BPO accounts for the smallest share of research in the sector overall, it is also the fastest growing segment. The final category of Indian IT is hardware, which unit just twenty years ago accounted for the largest share of the industry. Today, the hardware sub sectors growth appears to be slow in comparison of IT and ITES – BPO, thus it is sometimes characterised as moribund. But the growth of hardware over the past five years can be deemed slow only in comparison to the extremely brisk clip in the rest of the sector indeed, India’s IT sectors have a major factors behind the recent boom of its economy overall.

Entry of IT industry in to Indian scenario

Globalization and technical advances in the networks domain have allowed white – collar jobs more offshore and have been the turning point in the world of outsourcing. The Indian IT industry has benefited greatly from this phenomenon and has an ever increasing presence in both urban and rural India.

The rise in the IT- ITEs industry/industries in India has been contributed to the following factors:

The presence of a large low cost, high quality labour pool in India has made it a cheap and attractive destination for outsourcing work. Off sharing work to India generates savings of 30% 50% on an average. A large English speaking community
and an education system, which produce a huge number of technology graduates, have spurred the call centre and BPO phenomenon.

The global delivery models used by top Indian firms increase productivity and provide higher returns to clients in the IT application and consulting areas.

With many international firms setting up shop in India, there has been an increasing focus on quality among the Indian companies. All the top players have SEI-CMM level 4-5 and ISO 9000 Certifications.

Due to a grouping need for better IT Services in businesses the world over, the top global IT companies are acquiring smaller companies with niche competencies to supplement their skill sets. This has fostered a new breed of entrepreneurs and venture capitalists in the country that are starting new business with the objective of being acquired by a bigger firm.

A practical policy framework by the govt has played an important role in encouraging competition and fostering growth.

Favourable tax structure – Minimum alternative tax is levied at rate of 76.5% on the profits of the companies. Profits from software export do not from a part of the profit taxable and MAT.

NASSCOM, a consortium of Indian software firms, has been given more freedom in regulating the software industry.
Amendments have also been proposed in the Indian evidence act in Indian panel code and the RBI act the mechanism of digital signature has been proposed to address the issue of jurisdiction, authenticities and origination.

The Indian IT/ITES industry earned revenue of US$ 100 bn during FY13. Out of this, exports accounted for 68% of the industry's revenue.

**Infrastructure Tech Park India**

The Indian Software industry has made its mark in the new world economic order and is today enjoying the benefits of world class infrastructure being created by leading corporate to augment the growth of the Indian Industry. The last five years have seen a tremendous growth in Tech-Park that are geared to meet the requirements of the knowledge industry located in key IT and ITES markets like Chennai, Bangalore and Gurgaon that these parks offer silicon valley type infrastructure in India.

**Table 3.1 Software Export Growth in India**

<table>
<thead>
<tr>
<th>Year</th>
<th>Export Growth (US$ millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-2002</td>
<td>1506</td>
</tr>
<tr>
<td>2002-2003</td>
<td>2206</td>
</tr>
<tr>
<td>2003-2004</td>
<td>2124</td>
</tr>
<tr>
<td>2004-2005</td>
<td>2174</td>
</tr>
<tr>
<td>2005-2006</td>
<td>2950</td>
</tr>
<tr>
<td>2006-2007</td>
<td>3446</td>
</tr>
<tr>
<td>2007-2008</td>
<td>4377</td>
</tr>
<tr>
<td>2008-2009</td>
<td>6208</td>
</tr>
<tr>
<td>2009-2010</td>
<td>7974</td>
</tr>
<tr>
<td>2010-2011</td>
<td>8113</td>
</tr>
<tr>
<td>2011-2012</td>
<td>10019</td>
</tr>
<tr>
<td>2012-2013</td>
<td>15928</td>
</tr>
</tbody>
</table>

Source: STPI
The above graph shows that software export growth in India from 2001 to 2013. It is clearly revealed that in the year 2001-02 -Rs: 1506 (Crore), 2002-03 -Rs: 2206 (Crore), 2011-2012 -Rs: 10019 (Crore) and 2012-13 -Rs: 15928 (Crore). The software export growth in India is increased when compared 2001 and 2010 to 2013.

**Status of IT industry in Tamil Nadu**

The growth of the software industry in Tamil Nadu has been spectacular: More than 930 Companies are operational with over 145,000 professionals employed.

**Table 3.2 Software Export in Tamil Nadu**

<table>
<thead>
<tr>
<th>Year</th>
<th>Software Export (Rs in Crores)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-2001</td>
<td>1914</td>
</tr>
<tr>
<td>2001-2002</td>
<td>3116</td>
</tr>
<tr>
<td>2002-2003</td>
<td>5223</td>
</tr>
<tr>
<td>2003-2004</td>
<td>6316</td>
</tr>
<tr>
<td>2004-2005</td>
<td>7621</td>
</tr>
<tr>
<td>2005-2006</td>
<td>14115</td>
</tr>
<tr>
<td>2006-2007</td>
<td>20658</td>
</tr>
<tr>
<td>2007-2008</td>
<td>28426</td>
</tr>
<tr>
<td>2008-2009</td>
<td>36680</td>
</tr>
<tr>
<td>2009-2010</td>
<td>36765</td>
</tr>
<tr>
<td>2010-2011</td>
<td>42210</td>
</tr>
<tr>
<td>2011-2012</td>
<td>50000</td>
</tr>
</tbody>
</table>

**Source: NASSCOM**

Software export growth in Tamil Nadu expressed in this table shows from 2000 to 2012. In 2000 software export in Tamil Nadu is Rs.1914 Crores, in 2002
Rs.5223, when comparing to 2008 to 2010 it is increased by Rs: 36765 Crores. This shows that IT growth in Tamil Nadu increases year by year.

**IT at Chennai Level**

Chennai is the capital of Tamil Nadu. According to one estimate, about 15% of India’s software exports are contributed by Chennai alone. Chennai is next to Bangalore as far as famous a software export is concerned. Many software and software service companies have development centres in Chennai

**HRD Practices in IT**

The moderation of economic activity across the world is the highlight of 2012. The degree of uncertainty left an indelible impact on the Indian IT-BPM industry. The sector has rapidly evolved, in terms of expanding its vertical and geographic markets, attracting new customers, transforming from a technology to strategic partner — thus cementing India’s position as the premier global sourcing destination, with a share of 52 per cent in 2012 (up from 50 per cent in 2011).

Future growth will come from a combination of higher value services, increasingly non-linear play and further, extension of the sector’s cost proposition. The Indian IT-BPM industry has already begun moving from enterprise services to provide ‘enterprising solutions’ — incorporating SMAC (Social, Mobile, Analytics and the Cloud) to create client impact, not only on cost, but revenues, profit margins and cash flows.
In the face of a volatile economic environment, global tech’s spending grew 4.8 percent, to reach $1.9 trillion (1479 billion) in 2012. Hardware grew by seven percent (driven by demand from a rising lower/middle class); IT services and packaged software grew 3.3 per cent each (owing to the impact of SMAC technologies); BPM experienced the fastest growth at 4.9 per cent (in the areas of platform and analytics); ER&D grew to four per cent (with the industry adjusting to changed consumer preferences).

In association with this growth, the global sourcing market reached $124-130 billion (96.52-101 billion), exhibiting a growth of nine per cent — nearly twice the growth of the global IT spending. APAC’s spending grew six per cent, nearly 1.6 times faster than mature geographies including the Americans (at five per cent) and EMEA (at one per cent). Lingering concerns about the global economy also impacted contract volumes, which shrunk by 13 per cent. However, the Average Contract Value (AC V) remained fairly steady at $21 billion (16.3 billion), largely due to a number of mega deals in the BPM space.

So far this chapter completely describe the conceptual framework of E-Learning Process and respective impact over training and development. Infect the researcher described the technicalities involved in the process and highlighted the importance. The profile of IT companies also gave a panoramic view of growth of IT Companies as well as prevailing E-Learning Process and Training and Development in IT companies.