

Impact of Training Programmes on IT Professionals Performance in Chennai City

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Abstract

Training is the buzz word in every industry which keeps the employees in the organization fit to industry requirements. Training enables the organization to be flexible, dynamic and competitive and ensures to sustain the present position and strive for rapid growth in the industry. The main purpose this paper is to examine the impact of training programmes on post-training performance of the IT Professionals at selected IT companies from Chennai city. The sample size of the study was 500 IT Professionals (i.e. 50 employees from each company). The Stratified random sampling was used to choose the samples from each strata i.e. IT Company. The survey method of data collection was used structured questionnaire. The findings of the descriptive statistical analysis revealed that the IT professionals were moderately satisfied with the reaction to training, behavioural change, and adaptive performance. They were more satisfied with the skills acquisition, effect of training, return on investment, task performance, and contextual performance. The results of the regression model derived also explored that all the sub-constructs of training evaluation have a robust relationship with the post-training performance of the IT Professionals from the selected IT companies at Chennai city.

Keywords

Training, IT Professional, Post-training Performance, IT Industry, Chennai City

I. Introduction

Indian Information Technology (IT) industry is the largest sourcing destination in the world, which accounts for roughly 67% (percent) of the US\$ 124-130 billion market. The IT industry offers employment to around 10 million people. It has contributed to the economic transformation of the country and changed the mindset of other countries about India. The USP of Indian IT industries are providing IT services around 3-4 times economical than the US in order to attract the projects from the international sourcing market, which was recognized from various multi-national corporations so they setting up their innovation centres in India. Being a Knowledge Industry, professional working in Information Technology sector in India requires sharpening their knowledge and skills according to the technological trends. Hence, the training and development programmes offered by the IT organizations aims to develop the KSA (Knowledge, Skills, and Attitude), abilities, and competencies of the IT professionals. The incompetent people who were not able to develop themselves according to the pace of technology swifts were thrown away of the industry in masses. Apart from the regular training and development sessions, the employees are expected to develop their knowledge and skills through e-learning modules through company's Learning Management Systems and/or online courses from the reputed organization/institutes. Training is the activity to enhance an employee's current skills for his or her present job (Laird, 1985; Nadler, 1990), enhances emotional quotient

(Pragadeeswaran and Panchanatham, 2003), and also improves their problem solving skills (Panchanatham et al., 1995; Anand et al., 2003; Panchanatham, 2005; Panchanatham, 2005), which is an important skill required in IT industry. The effective training helps to retain the employees in the organization (Nirmala Kumar and Panchanatham, 2011).

II. Theoretical Framework of the Research

This section of the research paper explains the fundamental theoretical concepts and principles based on which the present research built and executed. The present research has two main constructs such as training evaluation and employee job performance and these constructs has five and four sub-constructs respectively.

A. Training Evaluation

Training is one of the most important HRD activities in organizations today. The training in organization is inevitable, because the employees' working in any type of organization from manufacturing to service industries, or small-scale industries to multi-national corporations, employees required training in order to adopt to the changes happening in the organization demanded by its internal and external environment. However, the type of training required may vary based on the circumstances of the organization. It may range from small five to ten minutes brief lecture/demonstration by the colleague at peer level or by immediate superior (informal training) to few-weeks / few-months training by the professionals from training industry in specific technology (formal training).

According to Phillips (1997), training evaluation can be 'defined as a systematic process to determine the worth, value, or meaning of a training program or process and how it has affected the organization'. In 1950, Don Kirkpatrick (1996, 1998) has developed four stages training evaluation model in order to evaluate the effectiveness of training. There are four levels in the training evaluation framework. Level 1 denotes 'Reaction' which evaluates how participants respond to the training, Level 2 refers 'Learning' which measures if they actually learned the material, Level 3 signifies 'Behaviour' which considers if they are using what they learned on the job, and Level 4 represents 'Results' which evaluates if the training positively impacted the organization. This model can be applied to evaluate the training programme in before, during and after training in order to enhance and determinethe value of the training to the organization. This research adopted four stage training evaluation model of Don Kirkpatrick along with fifth level as 'Return on Investment', based on Philips (1997) training evaluation model. Hence, the training evaluation scale used in this research has five sub-constructs such as reaction to training, skills acquisition, behavioural change, effect of training, and return on investment.

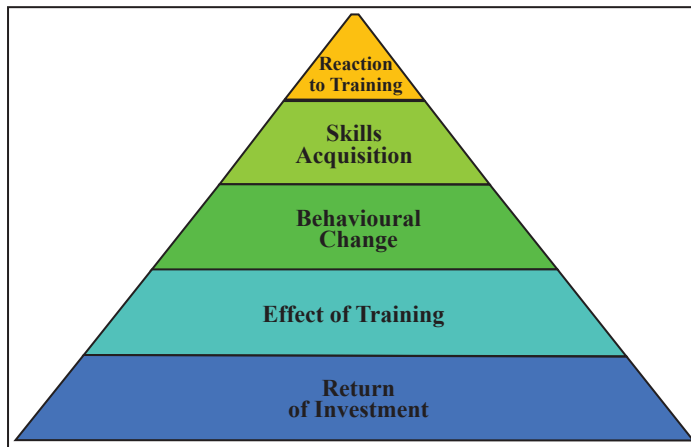


Fig. 1: Training Evaluation Framework

1. Reaction to Training

Reaction to training find out the IT professionals' perception towards the benefits of training and learning experience, which includes typical questions concern the degree to which the experience was valuable (satisfaction), whether they felt engaged, and whether they felt the training was relevant in selected companies from IT Sector. IT organizations use that feedback to evaluate the effectiveness of the training, trainees' perceptions, potential future improvements and justification for the training expense (Akbar Jan and Muthuvelayutham, 2012a). A variety of sources estimate that approximately 80% (percent) of training events include reaction to training evaluation.

2. Skills Acquisition

Skills acquisition deals with the learning through training. It aims to quantify the amount of learning occurred with respect to knowledge, skills and attitudes as the outcome of the training given to IT Professionals in chosen IT companies. Trainers used to ensure accomplishment of training objectives through measuring skills acquisition of trainees through the training programmes. Therefore, it is mandatory to know what IT Professionals have learnt, and what they aren't, which enable IT organizations to plan further related to designing and execution of training programme. Skills acquisition can be done in different phases, for example before the training, during the training and after the training programmes, in order to know the effectiveness of training programmes. In this research, only post-evaluation of skills acquisition was done.

3. Behavioural Change

Behavioural change evaluate the degree to which trainees' behaviors change as a consequence of the training, which deals with the impact of knowledge and skills acquired through the training has any effect on the development and execution of the IT projects/job in IT organizations (Akbar Jan and Muthuvelayutham, 2012b). There was also possibility of changes in behavior not only because of training given, which may also be due to some other factors. For example, the reluctance or refusal of IT Professionals to get the learning from training programme may also lead to failure of occurrence of behavioral change. Behavioural change evaluation involves both pre- and post-training measurement of the trainees' behavior, however in this training it considers only post-training behavioural change perceived by the IT professionals.

4. Effect of Training

Effect of training finds to determine the tangible results of the training namely reduced cost, improved quality and efficiency,

increased productivity, retention of IT professionals and enhanced morale in selected IT companies (Blanchard and Thacker, 2003). Assessing the effectiveness of the training programme is a demanding aspect, however accurate assessment is a difficult and time-consuming process which also leads to further expenses, but the IT organizations can't skip this level. This phase ensures whether specific outcomes are really the outcome of the training. Effect of training requires both pre- and post-event measurement of the training objective.

5. Return on Investment

The term 'Return on Investment (ROI)' refers to the measurement of the profitability of projects. It combines net benefits (monetary and non-monetary) compared to the investment /costs of a program and is mostly expressed in a ratio or percentage (Horngrén, 1982; Phillips, 1997). This construct is included based on Phillips's (1997a) Five Level Return on Investment (ROI) Framework, in which he added a fifth level to Kirkpatrick's (1994, 1998) four levels of evaluation. Phillips expanded Kirkpatrick's framework by adding a fifth level as ROI. Measurement at this level compares the monetary benefits from the program with the fully loaded cost to conduct the program. Conducting an impact study of a training program requires completing all five steps in the framework (Phillips, 1997). The training has the impact on business performance (Kayatry Sabitha and Panchanatham, 2009).

B. Post-Training Work Performance

The Job Performance scales are of wide variety and also multidimensional in nature. The current study has utilized the Individual Work Performance (IWP) Scale developed by Koopmans et al (2012) which has four sub-constructs such as task performance, contextual performance, adaptive performance, and counterproductive work behavior. Campbell (1990) defined the term IWP as "behaviors or actions that are relevant to the goals of the organization". Each sub-construct of IWP was briefed below. The training also has the impact on self-efficacy of the employees (Mohan raj and Panchanatham, 2017).

1. Task Performance

Task performance can be defined as "the proficiency (i.e., competency) with which one performs central job tasks. Other similar terms refer task performance are job-specific task proficiency, technical proficiency, or in-role performance, which includes work quantity, work quality and job knowledge" (Koopmans et al., 2011).

2. Contextual Performance

In the words of Koopmans et al., (2011), the term 'Contextual performance' can be defined as "individual behaviors that support the organizational, social, and psychological environment in which the technical core must function". The other terms represent 'contextual performance' are non-job-specific task proficiency, extra-role performance, organizational citizenship behavior, or interpersonal relations.

3. Adaptive Performance

Adaptive performance refers to "the extent to which an individual adapts to changes in a work system or work roles, which contains solving problems creatively, dealing with uncertain or unpredictable work situations, learning new tasks, technologies, and procedures and adapting to other individuals, cultures, or

physical surroundings” (Koopmans et al., 2011). In short, adaptive performance refers to an employee’s proficiency in adapting to changes in work roles or environment.

4. Counter Productive Work Behaviour

According to Koopmans et al (2011), Counterproductive work behavior refers ‘to the behavior that harms the well-being of the organization, which includes behaviors such as absenteeism, being late for work, engaging in off-task behavior, theft, and substance abuse’. In other words, Contextual performance refers to employee behaviors that support the organizational, social, and psychological environment in which the central job tasks are performed.

III. Purpose of the Study

In the period from 2009-10 to 2017-2018, it is the first time Tata Consultancy Services Ltd (TCS), Infosys and Wipro Ltd, which make up a quarter of the IT industry’s total business, grew slower than the industry’s 8.6% growth in constant currency terms in 2016-17. The IT sector is in the middle of its largest retrenchment season. Seven of India’s biggest software services firms are planning to ask at least 56,000 engineers to go this year-even this number may increase further. The expansion of the Internet in the past decade has led to wider adoption of artificial intelligence, allowing companies to lease computing power by the hour. This has upset Indian IT’s model of arraying armies of engineers in low-wage countries to write software codes and manage technology infrastructure for their clients in the US and Europe. The latest challenge is protectionism in the US, which has squeezed work visas for low-wage Indian IT engineers working with clients in that country. Since, the information technology organizations are knowledge based industry, which demands rapid knowledge and skill development according to the pace of change in the industry. Here, the researchers would like to quote the scenario of IT professionals as, “Learn or Quit”, based on the phrase “Do or Die”. Hence, the main aim of this research was to examine the impact of training programmes on IT professionals’ performance in Chennai city.

IV. Methodology

This research adopted descriptive research design in order to explore the impact of training programmes on IT professionals’ performance in Chennai city. The universe of the research encompasses the IT professionals those who have at least two years in association with any one of the chosen Information Technology organizations situated in Chennai city. The sampling area of the study includes top ten IT companies ranked by NASSCOM in the year 2015-2016, which was ranked by financial and other information collected from its member companies through survey method. such as located in Chennai city. Hence, the list of companies included in the survey are Tata Consultancy Services, Infosys, Wipro, HCL Technologies, Tech Mahindra, L&T InfoTech, Syntel, MindTree, MphasiS, and Genpact India. The sample size of the study was 500 IT Professionals (i.e. 50 employees from each company). The Stratified random sampling was used to choose the samples from each strata i.e. IT company. The survey method of data collection was used structured questionnaire. The data collection instrument has two scales namely training evaluation scale and post-training performance scale. The Data Collection Instrument developed was pre-tested to ensure the reliability and validity.

Table 1: Scale Reliability Test – Training Evaluation Scale

S. No	Scales	Cronbach Alpha	Results
1	Reaction to training	0.826	Good
2	Skills Acquisition	0.717	Acceptable
3	Behavioural Change	0.877	Good
4	Effect of Training	0.812	Good
5	Return on Investment	0.902	Excellent
6	Overall Training Evaluation Scale	0.828	Good

Table 2: Scale Reliability – Individual Work Performance Scale

S. No	Scales	Cronbach Alpha	Results
1	Task Performance	0.891	Good
2	Contextual Performance	0.791	Acceptable
3	Adaptive Performance	0.911	Excellent
4	Counter-Productive work Behaviour	0.805	Good
5	Overall Individual Work Performance Scale	0.853	Good

Table 1 and 2 summarizes the results of scale reliability tests of training evaluation and Individual Work Performance Scales. From the tables, it is identified that the two chosen scales and its sub-constructs were having acceptable reliability and internal consistency.

V. Demographic Profile of the Respondents

The frequency analysis were used to describe the demographic profile of the respondents such as gender, age group, designation, and years of experience in the present organization were presented in Table 3.

Table 3: Demographic Profile of the Respondents

S. No	Particulars	Percentage
1	Gender	
	Male	57
	Female	43
2	Age Group	
	Up to 30 Years	45
	31 - 40 Years	29
	41 – 50 Years	19
	Above 50 Years	7
3	Designation	
	Project Manager	11
	Team Leader / Sr. Software Engineer/ Sr. Programmer	31
	Junior Programmer/ Junior Engineer	58
4	Experience in the Present IT company	
	Upto 3 Years	23
	3 – 6 Years	37
	6 – 9 Years	26
	More than 9 Years	14

From the above table, it is found that inferred that majority (57%) of the respondents were male and other 43% were female, whereas with regards to the age group 45% of them were up to 30 years, and very few (7%) of them were aged more than 50 years. It is also inferred that majority (53%) of the respondents were belongs to the age group of 35 – 45 years. Majority (58%) of the respondents were working as Junior programmers/junior engineers, and few (11%) respondents were working as Project Managers. 26% of the respondents were having experience of 6-9 years in the present organizations only 14% of the respondents were having more than 9 years' experience in the present IT organization.

Table 4: Descriptive Statistics

S. No	Scale	Mean	Std. Deviation
1	Reaction to training	17.17	3.142
2	Skills Acquisition	22.38	6.473
3	Behavioural Change	19.19	4.562
4	Effect of Training	20.32	4.732
5	Return on Investment	21.68	5.471
6	Task Performance	20.86	4.971
7	Contextual Performance	21.47	2.835
8	Adaptive Performance	19.79	4.792
9	Counter Productive Work Behaviour	08.03	3.629

The descriptive statistics (i.e. mean and standard deviation) of the chosen constructs were condensed in table 4. The mean value between 15.0 – 20.0 of the above-mentioned constructs indicates that the IT professionals were moderately satisfied with those constructs, whereas if it is more than 20.0 which denotes they were satisfied with that particular construct, Therefore, from the Table 4 it is identified that the IT professional were moderately satisfied with the reaction to training, behavioural change and adaptive performance. They were fully satisfied with skills acquisition, effect of training, return on investment, task performance, and contextual performance, whereas the standard deviation represents the dispersion of the frequency of the constructs, the contextual performance was having least deviation (2.835) and skills acquisition was having large deviation (6.473) among the chosen constructs. The IT Professionals from the selected IT companies perceive less impact of counterproductive behaviour in the organization after the training programme.

VI. Research Model and Development of Hypothesis

The hypothetical model of the research which test the impactof training on post-performance of IT professionals working in selected IT companies was portrayed in fig. 2.

Each path which connects the constructs and variables represents the relationship to be tested using the Hyposthesis testing, hence the following alternative hypothesis can be framed based on developed conceptual model:

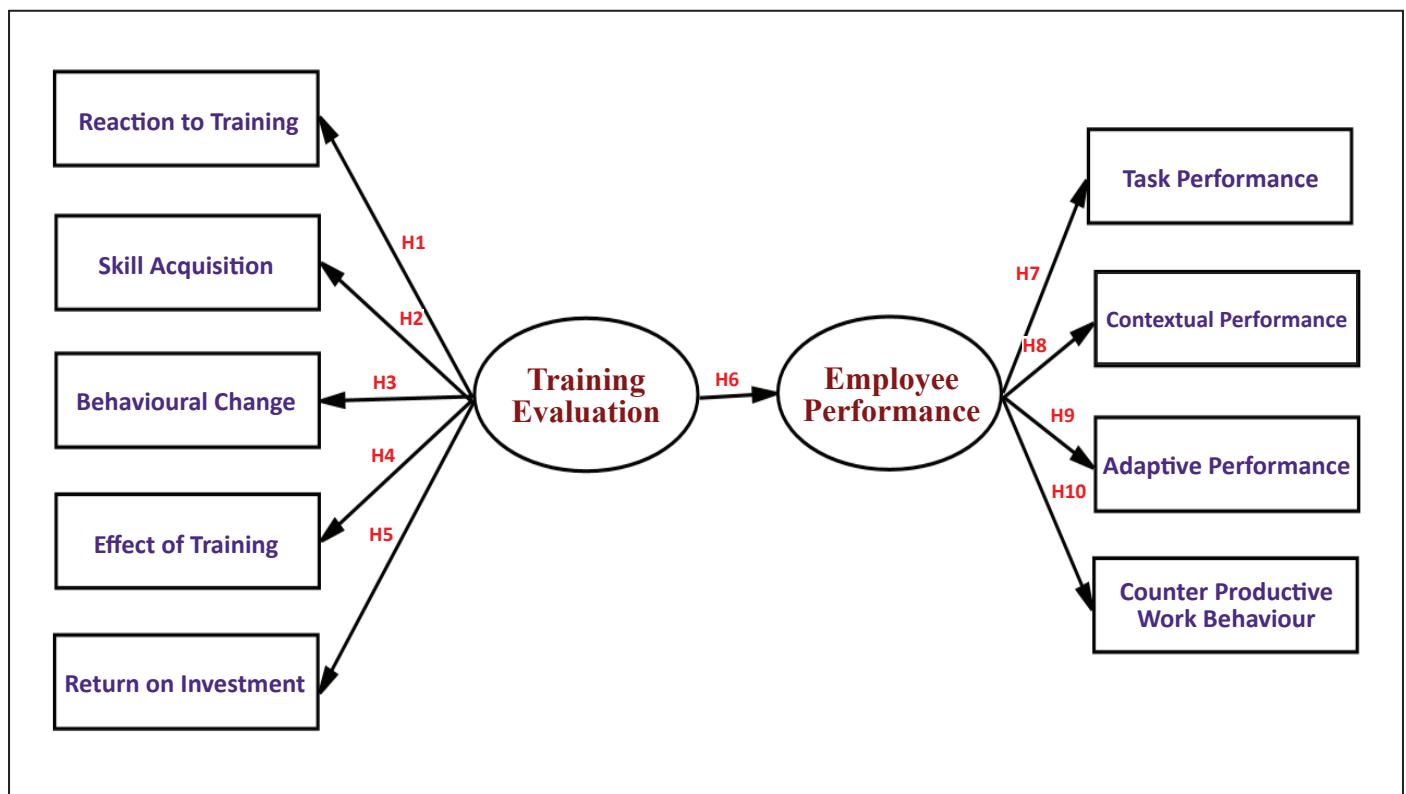


Fig. 2: Research Model

- H1:** There is a significant positive relationship between Reaction to training and evaluation of training offered by the IT companies in Chennai city.
- H2:** There is a significant positive relationship between Behavioural Change and evaluation of training offered by the IT companies in Chennai city.

- H3:** There is a significant positive relationship between Skills Acquisition and evaluation of training offered by the IT companies in Chennai city.
- H4:** There is a significant positive relationship between Effect of Training and evaluation of training offered by the IT companies in Chennai city.

- H5:** There is a significant positive relationship between return on investment and evaluation of training offered by the IT companies in Chennai city.
- H6:** There is a significant positive relationship between training evaluation and post-training performance of the IT Professionals in Chennai city.
- H7:** There is a significant positive relationship between Task Performance and post-training performance of IT Professionals in Chennai city.
- H8:** There is a significant positive relationship between Contextual Performance and post-training performance of IT Professionals in Chennai city.
- H9:** There is a significant positive relationship between Adaptive Performance and post-training performance of IT Professionals in Chennai city.
- H10:** There is a significant positive relationship between Counter-productive work behaviour and post-training performance of IT Professionals in Chennai city.

$$f(TE) = f(RT) + f(SA) + f(BC) + f(ET) + f(ROI) \quad \text{Eq(1)}$$

$$f(EP) = f(TP) + f(CP) + f(AP) + f(CPWB) \quad \text{Eq(2)}$$

$$f(TE) = f(EP) \quad \text{Eq(3)}$$

Where, TE means Training evaluation, RT denotes to Reaction to training, SA signifies Skills Acquisition, BC refers to Behavioural Change, ET refers to Effect of Training, ROI refers to Return on Investment, EP refers to Employees' Post-training Performance, TP discusses to Task Performance, CP denotes to Contextual Performance, AP signifies Adaptive Performance, and CPWB means Counter-Productive Work Behaviour.

VII. Regression Model

Regression model approach is used to explore the relationship between two or more variables, therefore in order to explore the relationship between the sub-constructs of training evaluation on post-training performance of IT Professionals in Chennai city.

A. Multiple Regression Analysis – Relationship between Training Evaluation and Post-training Performance

1. Hypothesis

H9a: Training offered by the IT companies having the positive impact on Post-training performance of IT Professionals from selected IT companies at Chennai city.

These hypothesis were tested using the Linear Regression Modeling Approach and the following regression equation may also be formed based on the research model developed.

Table 5: Training Evaluation and Post-Training Performance Regression Coefficients

S. No	Variables	Unstandardized Coefficients		Standardized Coefficients	T	P value
		B	Std. Error	Beta		
1	(Constant)	3.831	0.426	-	3.125	<0.001**
2	Reaction to training (X ₁)	0.571	0.311	0.542	2.414	<0.001**
3	Skills Acquisition (X ₂)	2.457	0.402	2.721	4.345	<0.001**
4	Behavioural Change (X ₃)	0.966	0.184	1.138	3.293	<0.001**
5	Effect of Training (X ₄)	0.604	0.151	0.613	2.312	<0.001**
6	Return on Investment (X ₅)	2.842	0.062	2.526	2.462	<0.001**

Note: 1. ** Denotes 1% level of significance

Based on the unstandardized estimates mentioned in the Table 5, the regression equation can be written as

$$\text{Post-Training Performance (Y)} = 3.831 + 0.571X_1 + 2.457X_2 + 0.966X_3 + 0.604X_4 + 2.842X_5 \quad \text{Eq.(1)}$$

Table 6: The Impact of Training on Post-Training Performance of IT Professionals

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	793.117	4	384.052	327.068	<0.001**
Residual	78.347	495	0.863		
Total	452.235	499			

a. Dependent Variable: Post-training Performance

b. Predictors: (Constant), Effect of Training, Reaction to training, Behavioural Change, Skills Acquisition and Return on Investment

Note: 1. ** Denotes 1% level of significance

Table 7: The R-square of post-training performance of IT Professionals

Multiple Correlation Coefficient (R)	R Square	Std. Error of the Estimate	R Square Change	Sig. F Change
0.892	0.867	0.7829	0.821	<0.001**
a. Predictors: (Constant), Effect of Training, Reaction to training, Behavioural Change, Skills Acquisition, Return on Investment				
b. Dependent Variable: Post-training Performance				

Note: 1. ** Denotes 1% level of significance

Table 7 reveals that the multiple correlation coefficient is 0.892 assess the degree of relationship between the actual values and the predicted values of the post-training performance. Because the predicted values are obtained as a linear combination of Reaction to training (X_1), Behavioural Change (X_2), Skills Acquisition (X_3), Effect of Training (X_4) and Return on Investment (X_5) the coefficient value of 0.917 indicates that the relationship between Post-Training Performance and the five sub-constructs of Training evaluation is positive.

VIII. Conclusion

The findings of the descriptive statistical analysis revealed that the IT professionals were moderately satisfied with the reaction to training, behavioural change, and adaptive performance. They were more satisfied with the skills acquisition, effect of training, return on investment, task performance, and contextual performance. The IT Professionals from the selected IT companies perceive less impact of counterproductive behaviour in the organization after the training programme, which means the training had a good impact on suppressing the counterproductive behavior of the IT Professionals by changing their attitude in a positive way, which is good for wellbeing of the selected IT Organizations. The results of the regression model derived also explored that all the sub-constructs of training evaluation has a robust relationship with the post-training performance of the IT Professionals from the selected IT companies at Chennai city. Therefore, based on the outcome of the research the researcher concludes that the training provided in selected IT companies considerably enhance the performance of the IT Professionals, hence they were able to contribute outstanding performance of the organization.

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Research and Publications

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Visited 35 countries Viz., U.S.A., Russia, U.K., Sweden, France, China, Singapore, HongKong, Thailand, Malaysia, Nepal, Israel, Mauritius, Cambodia, Vietnam, Cyprus, UAE, South Africa, Sri Lanka, Italy, Indonesia, Cameroon, Switzerland, Philippines, Vatican, Austria, Hungary, Czechoslovakia, Bosnia & Herzegovina, Lithuania, Latvia, Belgium, Slovakia, Netherlands and Germany for academic, training, and research purpose.