A Painstaking Exploration on the Influence of Perceived Benefits towards Training on Training and Development in Indian IT/ITES Industry

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Abstract

Training is one of the most inevitable compulsions for personal and professional evolution. One has to be on a rocket which always points towards a continuous and continual development. As time passes it is not the fittest who survive, it is the one who quickly adapts to the change who survives, and this can only be through a continual and lifelong training and learning process which is goal oriented and systematic. Many studies have been conducted on training and the needs of training but the scope further existed to explore whether the concept has relevance in those IT and IteS companies which has the highest process level maturity CMM level 5. The resolution of this study was to define a talented research on the prominence of training in capability maturity model level five Indian IT and ITeS industry. The study was also designed to establish whether various factors reported are having significant relationships with major factors as training quality and perceived benefits.

The task of improving the training quality would begin with a strong effort of measuring it and this thesis has tried to develop a scale for measuring the prominence of training in

CMM level 5 Indian IT and ITeS industries. Various factors where identified and the relationships where also studied. As a part of the study a model of the relationship was also proposed. To further confirm the relationship between these variables hypothesis where formulated and they were tested with latest statistical tools for confirmation. To arrive at a conclusion all the variables and factors were conceptualised on the strength of established theory and were measured using suitable indicators based on the response of the respondents by conducting a survey using structured questionnaires.

Keywords: **Training; Perceived Benefits of Training; Indian IT; ITeS Industry**

INTRODUCTION

India has climbed to countless pinnacles, an absolute Everest, in the software business. Software books for 25% of the total Indian trades. From a bare minimum of $2 billion industry in 1994-95, the Indian IT (Information Technology)/ITeS (Information Technology Enabled Services) industry has grown phenomenally over the years.

Industries are considered to be the engines of economic growth. This is more so in the case of the developing countries like India which aims at achieving faster economic growth. However, with the poor capital formation, the objective of achieving is a higher economic growth could be achieved only through the development of small scale and medium scale industries. The IT and ITes industries are playing a multifaceted role in the economy of Indian like the creation of employment, contributing to export earnings and eventually to the state and the national income of the economy.

With such an immense role being played by the IT and ITeS, the major problem confronting the industries is their poor output and high average cost of production. With the important characteristics of such industries being the labour intensive units, an important cause of such a poor performance is their poor labour productivity. Most employees have one or the other weaknesses in their skills necessary at the workplace. A training program allows you to strengthen those skills that each employee needs to improve. An employee who receives the right type and necessary training required for his or her job is able to perform the job better.

A training program allows one to strengthen those skills that each employee needs to improve. More specifically, a well-structured training and development program organized by the firm ensures the employees to upgrade and update his skills and background knowledge constantly and consistently. Providing the necessary training creates an overall well-informed staff with employees who can take possession of for one another as needed, work on teams or work independently without continuous help and administration from others. A development program brings all employees to a

higher level so they all have similar skills and knowledge.

Training is a process of tuning the employees in such a way that they cope better with the company demands and fulfil them in a more satisfactory manner. The training portfolios that are followed currently need to be modified for better moulding of the employees. Hence, T&D play a vital role in any organisation to transform employees with best abilities where their contribution leads the organisation towards achieving the objective. The ultimate aim of T&D is to increase job satisfaction and morale among employees. Only when this scenario is achieved the organisation will reach its goal. The juvenile nature of IT/ITES industry makes the T&D needs as volatile and to be addressed with personal touch. The executives in these firms are so promising in excellence. These situations force the researcher to throw some useful insight into this vital, but neglected area.

The theory regarding training demands a conceptual exploration, as most of the studies have considered perceived training quality as a parameter only for the trainees, rather than the perceived benefits towards training which also needs to be considered. The multi-dimensional perspective of training requires a testing for empirical evidence. There exists a visible shortage of the body of knowledge related to perceived benefits. Most of the previous studies are only concentrating on the way in which the training is being done and planned. Hence a need to provide a clear direction in which a theory needs to be developed in the various gaps that was observed.

Perceived Benefits towards training may be defined as the feelings of benefits by way of better performance in the present job and the potential of career growth through effective training programmes offered by an Indian IT/ITES company.

LITERATURE REVIEW

Ronald [1] in his study highlights the importance of lifelong learning for an organisation to sustain in the market which is ever changing. He points out that such an organisation should have options for a continuous training aid the or should have provisions to supply training and education from outside. It can also even happen through informal means of training and development activities. The study examines the benefits of a formal training program in a service firm. According to the study employees were hugely benefited in terms of improved satisfaction, enhanced effectiveness and performance, satisfaction from providing high quality and creative service to client, proven potential for development of the carrier, enhanced commitment to the firm and the investment that this made on the staff. This also highlights the managerial and professional women's participation in a variety of educational programmes conducted by the organisation and usefulness and impact of these kind of training programme.

Chang [2] in their paper explores the way in which the different administrators certified employees and managers perceive the value of getting their employees trained. The

method adopted for the study was in the interview where close group perspective was analysed and a combination of academic and industry experts were interviewed for the perceived benefits of a certification program offered by the company. The findings reveal a favourable perception towards the certification program in terms of individual and professional development and enhance the rate at which enrolment for these programs happen in an organisation. The study was conducted in a casino, which was one of the most preferred gaming destination in the world. The study also highlights a phenomenal growth in the scale of performance of the employees who have undergone training and development programs.

Newburry, Belkin, and Ansari [3] in their study highlights the importance of human capital investment understands how the employees perceive the method adopted for the development and the expectation of the organisation as a return on investment with enhanced knowledge and skills to achieve a better accommodate the advantage as a part of the study, it was identified that similarities and differences do exist between the relationship of an individual and capabilities of a company in terms of the attitude towards the woman and globalisation-related carrier perceptions. The study was conducted in a carefully selected sample of 96 employees.

Mpinganjira [4] highlights the importance of training and development activities for developing country where managers could show a steady growth in the firm, with enhanced sales and profitability as well as the development of a new market. The study also highlights the government policies, rules and regulations that support and can also be a barrier for the development of a firm. It highlights that the most important barrier is personal for an organisation which needs to be addressed and can be better than through an enhanced the motivational techniques by providing sufficient knowledge about the opportunity and personal development.

Zwaanswijk, Verheij, Wiesman, and Friele [5] has done a study on healthcare professionals and came out with the result that any means of training that is been initiated with the help of an information technology would promote the efficiency and the quality of the care offered by the employees. The study highlights the importance of confidentiality and safety of information that has been shared and exchanged a different part of the training programme and the reliability and the quality of the data. The study was conducted in two healthcare organisations and different people were interviewed from different facets for a better analysis.

The study compares the perception of a certification holder with those who does not have a certification and were classified according to a certain criteria which was used for self-measurement [6]. A questionnaire was developed and data was collected and analysed to categorise employees into different categories. This could prove the competence of an employee on a specific area, the perception of the employee, the prestige that the employee was able to enjoy, the professionalism the employee felt and the value of the employee conceived. Training programme according to him would

happen by chance and it takes more and more concrete efforts to make sure that the understanding of the concept and the practices or skill happens with a positive outcome which can be demonstrated over a period of time.

The observations from the literature reveals that there exist a recognising importance for the need to study on the prominence of training in capability maturity level V Indian IT and ITeS industries. This further demonstrates that training quality have to be enhanced by enhancing the training motivation and making the management oriented to the kind of training that is being offered which have to be aligned with the need that is been identified by the trainees. There can also be a scepticism between the training quality and the perceived benefits which also need to be addressed.

The literature on prominence of training also exposes several areas that require immediate attention in Indian scenario. The evaluation of these kind of training programme also need to be done. The scope of considering, expectation and perception of two different variables in the framework have a clear relationship, which requires to be tested. The current trainees would expect adequate quality in Indian scenario. Hence an enquiry about the decider, expectation level of these trainees on the selected attributes also have to be done.

Even the literature on training have considered various dimensions that a significant to CMM level V Indian IT and ITeS industries as well as emerging virtual formats in the Indian context, especially in South India, where IT has shown as footprints for the last indicates the need to develop and validate a scale which is capable of capturing the existing need of training evaluation in South India as a serious issue to be addressed.

The theory regarding training demands a conceptual exploration, as most of the studies have considered perceived training quality as a parameter only for the trainees, rather than the Management orientation towards training which also needs to be considered. The study, either attempts to quantify satisfaction into a score or just evaluate the relationship between perceived training quality and perceived benefits. The multi-dimensional perspective of training requires a testing for empirical evidence. There exist a visible shortage of the body of knowledge related to trainee's motivation and perceived benefits and perceived needs and perceived benefits. Most of the previous studies are only concentrating on the way in which the training is being done and planned.

In brief the review of literature could provide a clear direction in which a theory needs to be developed in the various gaps that was observed.

RESEARCH METHODOLOGY

The Research Design of the present study is a combination of Doctrinal, Qualitative and Empirical Research Methods.

Doctrinal Research will include review of existing training practices with the training need analysis and the feedback of the trainees and explanations of the trainees and also from published articles.

Qualitative Research will include data collection by means of questionnaire, personal interview with a focussed sample comprising of stakeholders and experts on the issue. The focussed sample includes the trainers and trainees of the CMM level 5 IT/ITES industries in India. Academic Experts will also be considered to get an expert opinion on the proceedings.

Empirical research since the data collected through the above methods, the effectiveness of the existing training method and framework will be analysed to identify the gaps. Subsequently, International Guidelines may be referred to for suggesting reforms.

Research process is actually divided into two phases. In the phase 1 all the articles in the field of study was identified and was read by the author to get a clear picture of the problem. From that a research framework was developed and various variables for the study was also identified. Based on the variables that were identified as independent, dependent and moderating variables the role of the same was tested with the central objectives that was formulated. Once the central objective was finalised the relationship of these variables with the objective was tested and a problem was identified from the literature. Objectives where then formulated to satisfy those problem that was identified.

In the same phase the different methods of data collection was finalised and a pilot study was conducted with a limited number of sample to test whether significant data is been received of not. Once we are able to get significant data out of the sample that we have selected the questionnaire or let that be any kind of a device that is used for collecting the data would be finalised and a detail questionnaire is made with the help of the variables that have been selected from the literature. With the variables being selected you would be able to identify which among them would be independent, dependent and moderating. With these data in hand a theoretical model can be developed on how the research is going to be carried further.

All the above mention steps would be used as step one or the things that are going to be done in phase one of the study. In the phase two sampling design would be done and the sample that is going to be used for collecting the data and studying on the variables would be identified. Here in this research researcher has selected six different IT and ITES companies across India. In this part of the study it is very vital that the researcher have two drill down quite a lot of details and to design a questionnaire that that is going to suit the requirement of the sample and customise it based on the requirement of the respondents and the data that the researcher is interested in. Various data collection strategies like questionnaire, personal interview or participant

observation is used in this study. Participant observation was included to get a real-time experience of what exactly is happening inside a training room which also led to the realisation of the fact that the trainees consider training as an experience that as a result of the quality of the content, delivery technique of the trainer, methodology, enthusiasm and the trainer is able to create in the mind of the trainees and the off ambience of the place where the training is going to be offered. To the end various analytical strategies all was that are being used for analysing the data that is been collected various instruments are finalised and various is are also identified to satisfy the requirement based on the objective that is been finalised in the first part of the study. In this study the researcher have used lot of tools that satisfy different requirements. The exploratory factor analysis using SPSS, confirmatory factor analysis using AMOS and Structural Equation modelling is also employed for a better and effective way of presenting the data that is been collected from various sources.

Exploratory Factor Analysis for Perceived Benefits Construct

The analysis procedure was to explore the dimension structure of perceived benefits construct using exploratory factor analysis. 12 scale items were used to measure benefits using SPSS 20. An Exploratory Maximum Likelihood factor analysis with varimax rotation was performed. The items that load higher than 0.4 are retained while low loading items are dropped. In general, higher factor loading are considered better, and typically loadings below 0.30 are not interpreted.

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was 0.899 and the Bartlett Test of Sphericity was significant (p<0.001) with a Chi Square value of 3430.135 with 66 degrees of freedom as shown in Table 1 below, confirmed the goodness of data good for further analysis and provided support for the factorization. The Exploratory Maximum Likelihood factor analysis identified eight components with an Eigen value greater than 1, which together explained over 69.689 percent of the variance. Below illustrates outcome of EFA (Tables 2 and 3).

Table 1: KMO and Bartlett's Test.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.899
Bartlett's Test of Sphericity	Approx. Chi-Square	3430.135
	Df	66
	Sig.	0.000

Table 2: Total variance extracted.

Total Variance Explained									
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative%	Total	% of Variance	Cumulative%	Total	% of Variance	Cumulative%
1	5.611	46.760	46.760	5.611	46.760	46.760	4.350	36.247	36.247
2	2.751	22.929	69.689	2.751	22.929	69.689	4.013	33.442	69.689
3	.782	6.518	76.207						

Table 3: Factors extracted after EFA.

Rotated Component Matrix[a]		
	Component	
	1	2
pjb1	0.645	
pjb2	0.698	
pjb3	0.616	
pjb4	0.826	
pjb5	0.877	
pjb6	0.901	
pjb7	0.828	
cdb1		0.862
cdb2		0.908
cdb3		0.899
cdb4		0.866
cdb5		0.864
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.		
[a]Rotation converged in 3 iterations.		

The factor structure emerged after EFA was having items with adequate loadings converging to each identified factors with marginally less evidence for conflicting cross loadings. All the 12 items could be classified into two dimensions in alignment with the pre-conceptualized pattern. The following conclusions were drawn from the exploratory factor analysis conducted.

•   There existed two underlying factors which represent the benefit in the perceptions of an Indian IT/ITES employee in South India.

•   Each item was related to only one factor.

•   The identified factors were named on the basis of the theme behind the items that formed a group. The details are illustrated in the following Table 4 with reliability coefficients at this stage of analysis

Table 4: Factor structure after EFA.

SI No	Factor Name	No: of Items	Alpha Value
1	Present Job Benefit	7	0.88
2	Career Development Benefit	5	0.93

The next step was to conduct a confirmatory factor analysis of the benefit dimensions identified.

Confirmatory Factor Analysis-Perceived Benefits Dimensions

The primary objective of conducting CFA was to determine the ability of a predefined factor model to fit an observed set of data. It provides estimates for each parameter of the measurement model. CFA has strong links to structural equation modelling and hence the procedures demand verification of certain assumption. CFA requires validation of measurement models of each identified factors from EFA followed by Validation of structural model containing all factors. The measurement model is the part of an SEM model that deals with the latent variables and their indicators. The measurement model was evaluated for validity like any other SEM model, using goodness of fit measures. Maximum likelihood (ML) estimation method was used in all analysis using Amos.22. Maximum likelihood "aims to find the parameter values that make the observed data most likely (or conversely maximize the likelihood of the parameters given the data)" [7]. It has several desirable statistical properties:

•   it provides standard errors (SEs) for each parameter estimate, which are used to calculate p-values (levels of significance) and

•   it provides confidence intervals, and its fitting function is used to calculate many goodness-of-fit indices

The first stage in confirmatory factor analysis was validating the measurement model for all first order dimensions of benefit construct.

Measurement Model for "Present Job Benefit" Dimension

The seven indicator variable model of "Present Job Benefit" dimension was suggesting poor fitting model in the first estimate. The normed alpha, RMSEA and CFI were above the permissible level. As per modification indices, an error correlation was added

between indicator variables "pjb1" and "pjb2"and also between indicator variables "pjb2" and "pjb3", considering theoretical grounds, as to correlate error terms there needs to be a strong theoretical justification behind such a move [8,9] to develop a well fit and significant model. The model was found to be good fitting model with recommended indices as illustrated in Figure 1. All the paths shown in the model are significant as critical ratios were above 1.96.
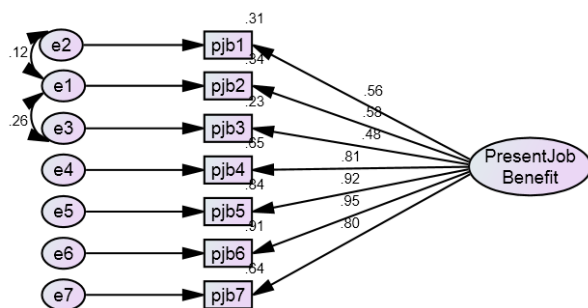

Measurment Model for "Present Job Benefit" Dimension
CMIN/DF = 2.109 , CFI = 0.992, GFI = 0.981, SRMR = 0.0239
RMSEA = 0.054, PCLOSE = 0.377, HOELTER = 398

Figure 1: Measurement Model for "Present Job Benefit" dimension.

Measurement Model for "Career Development Benefit" Dimension

The five indicator variable model of "Career Development Benefit" dimension was suggesting poor fitting model in the first estimate. The normed alpha, RMSEA and CFI were above the permissible level. As per modification indices, an error correlation was added between indicator variables "cdb4" and "cdb5"and in consideration of theoretical grounds. The model was found to be good fitting model with recommended indices as illustrated in Figure 2. All the paths shown in the model are significant as critical ratio were above 1.96.
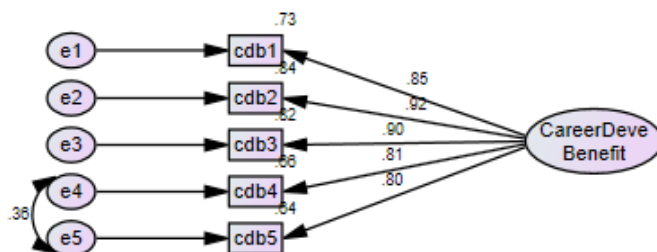
Measurment Model for "Career Development Benefit" Dimension
CMIN/DF = 3.879 , CFI = 0.993, GFI = 0.984, SRMR = 0.0111
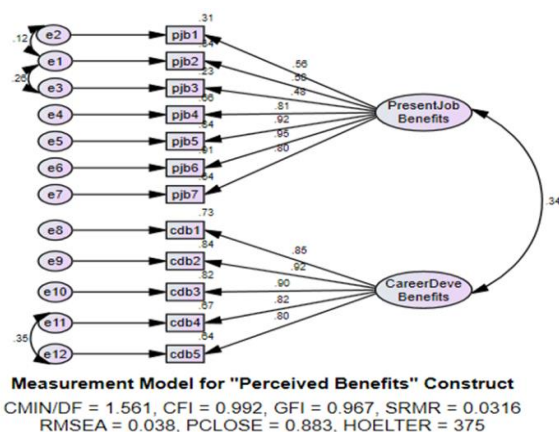RMSEA = 0.087, PCLOSE = 0.075, HOELTER = 329

Figure 2: Measurement Model for "Career Development Benefit" dimension.

Structural Model for Perceived Benefits Construct

The statistical significance of relationships among benefits and its extracted dimensions were of interest to this study. The well-fit measurement models of benefits dimensions are taken together to arrive at a fitting structural model for benefit. The model developed is illustrated in Figure 3 below. The primary task in this model-testing procedure is to determine the goodness-of-fit between the hypothesized model and the sample data.

The first model developed had all fit indices above the permissible limits and hence finalizes as a good-fitting model explaining the benefit construct.

Table 5 below provides RMSEA value for the above hypothesized model and was found as 0.038, with the 90% confidence interval ranging from 0.020 to 0.054 and the p-value for the test of closeness of fit equal to 0.883. Interpretation of the confidence interval indicates that, 90% confidence can be assigned that the true RMSEA value in the population will fall within the bounds of 0.020 and 0.054, which represents a good degree of precision. Given that (a) the RMSEA point estimate is <0.08 (.038); (b) the upper bound of the 90% interval is also within permissible limits; and (c) the probability value associated with this test of close fit is >0 .05 (p=0.883), it can be concluded that the initially hypothesized model fits the data well.

Measurement Model for "Perceived Benefits" Construct
CMIN/DF = 1.561, CFI = 0.992, GFI = 0.967, SRMR = 0.0316
RMSEA = 0.038, PCLOSE = 0.883, HOELTER = 375

Figure 3: Confirmatory model for perceived benefits construct.

Table 5: RMSEA estimates.

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.038	0.020	0.054	0.883
Independence model	0.367	0.356	0.377	0.000

The proposed structure of the hypothesized model on the sample data need to be tested to find how well the observed data fit this restricted structure. Because it is highly unlikely that a perfect fit will exist between the observed data and the hypothesized model, there will necessarily be a differential between the two; this differential is termed the residual. The model-fitting process can therefore be summarized as follows:

Data=Model+Residual, where

•   Data represent score measurements related to the observed variables as derived from persons comprising the sample.
•   Model represents the hypothesized structure linking the observed variables to the latent variables and, in some models, linking particular
•   Residual represents the discrepancy between the hypothesized model and the observed data.

The discrepancy between the restricted covariance matrix, demonstrated by the hypothesized model, and the sample covariance matrix is captured by the residual covariance matrix reported in the AMOS output. The standardized residual co-variance should be less than 2.58 to conclude statistically significant co-variance between two variables [10]. Hence observations were standardized residual co-variance more than 2.58 can be considered for exclusion in further analysis. Another criterion for identifying significant items is verification of critical ratio reported in AMOS output along with estimates. The critical ratios (C.R.), are to be > ±1.96 for concluding statistical significance of items used for measuring latent variables. Non-significant parameters, with the exception of error variances, can be considered unimportant to the model; in the interest of scientific parsimony they should be deleted from the model [10]. Here, all standardized residual co-variances among items were below 2.58 and critical ratios above 1.96, to confirm satisfactory completion of the estimation process to draw conclusions on relationship among variables. The Amos output for confirmed model illustrated in annexure.

Validation of the Perceived Benefits Scale

To demonstrate the soundness of measurement scale developed, first of all, it was necessary to address the issue of Common methods variance (CMV). Common methods variance can be a major source of measurement error in data collection when variables are latent and measured using the same survey at one point of time. CMV may inflate the true correlations among latent constructs and threaten the validity of conclusions. Harman's single-factor test is most widely known approach for assessing CMV in a single-method research design [11]. In single-factor test, all of the items in the study are subjected to exploratory factor analysis (EFA). CMV is assumed to exist if

•   A single factor emerges from unrotated factor solutions, or

- A first factor explains more than 50% the variance in the variables [11].

The EFA conducted with all variables in the study yielded two distinct factors with an eigen value above one. The first factor accounts for 46.76% of the variance at unrotated stage and all factors together account for 69.689% of the total variance to confirm that CMV was not a major concern in this study.

Convergent validity was established when the relationship between measurement items and the factor were significantly different from zero. Based on this criterion, critical ratios were used to evaluate the statistical significance. Parameters which have a critical ratio greater than 1.96 were considered significant based on the level of $p=0.05$ [12]. In this study, all of the measurement items represented their factors significantly, as the critical ratio of every item exceeded the 1.96 value; hence, all of the measurement items satisfied the convergent validity test. Also, the standardized regression weights should be significantly linked to the latent construct and have at least loading estimate of 0.5 and ideally exceed 0.7 [13]. In this study the factor loading ranged from 0.616 to 0.908. The convergent validity assessment also included the measure of construct reliability and average variance extracted. According to Anderson [14] variance extracted refers "the amount of variance that is captured by the construct in relation to the amount of variance due to measurement error". Further Anderson and Gerbing [15] suggested that variance extracted to be a more conservative measure than construct reliability. As a rule of thumb good reliability is suggested if, Cronbach's alpha estimate is higher than 0.7. Further, variance extracted (AVE) for a construct should be larger than 0.5 indicate reliable factors [13]. Another rule of thumb for checking composite reliability is in comparison with squared multiple correlations provided in the Amos output. Composite reliability is considered high if squared multiple correlation R^2 ("smc") greater than 0.5, moderate if between 0.3 and 0.5 and poor if less than 0.3 [16]. In this study, the squared multiple correlations reported more than 0.5 except for 20 indicators, between 0.3 to 0.5 for seven items and below 0.3 for four items to generally conclude adequate composite reliability.

Discriminant validity was confirmed by examining correlations among the constructs. As a rule of thumb, a 0.85 correlation or higher indicates poor discriminant validity in structural equation modelling [17]. None of the correlations among variables were above 0.85. The results suggested adequate discriminant validity of the measurement.

The validity statistics can be determined using Microsoft Excel based Validity Concerns Toolkit developed by Prof. Gakingston. The Table 6 below reports the composite reliability (CR), average variance extracted (AVE), maximum shared variance (MSV) and average shared variance (ASV) of the dimensions.

Table 6: Quality assessment details for dimensions.

	CR	AVE	MSV	ASV
Present Job Benefits	0.734	0.543	0.076	0.038
Career Development Benefit	0.803	0.545	0.386	0.186

Dimensions were with CR more than 0.7 to meet reliability criteria. All AVE's were found more than 0.5 except for two cases marked in red. The values in red are also close to 0.5 and hence serious dilution of quality is not expected. Thus convergent validity and since MSV<AVE and ASV<AVEs, discriminant validity could be established. Further, all standardized residual co-variances among items were below 2.58 and critical ratios above ±1.96, to confirm significance of items used in the measurement [18]. All standardized regression coefficients were above 0.50 suggesting that each of the items should remain in the model. From the above observations, it was confirmed that the scale developed was having adequate psychometric soundness for measuring perceived training quality.

Testing the multidimensional structure of perceived benefits construct

This study required to verify the psychometric soundness of the perceived benefits construct, which is conceptualized as multi-dimensional formative one with two first order dimensions. Identification of formative indicator constructs in Amos 22 required modifications as proposed by Jarvis, MacKenzie, and Podsakoff [19]. Accordingly, two theoretically appropriate reflective indicators were introduced and paths were constrained. The estimated model is presented in Figure 4 below.

The validity statistics can be determined using Microsoft Excel based Validity Concerns Toolkit developed by Prof. Gakingston. Dimensions were with CR more than 0.7 to meet reliability criteria. All AVE were found more than 0.5 to confirm convergent validity and since MSV<AVE and ASV<AVEs, discriminant validity could be established. From the above observations, it was confirmed that the multi-dimensional formative structure of training quality is psychometrically justifiable.

It was confirmed from the confirmatory factor analysis was that Perceived Benefits is a multidimensional hierarchical one formed with two first order dimensions namely Present Job Benefits and Career Development Benefits. The item structure is illustrated in Table 7.

Table 7: Item structure of training quality construct.

SI No	Factor Name	No: of Items
1	Present Job Benefit	7
2	Career Development Benefit	5

Measurement Model for "Perceived Benefits" Construct
CMIN/DF = 1.561, CFI = 0.992, GFI = 0.967, SRMR = 0.0316
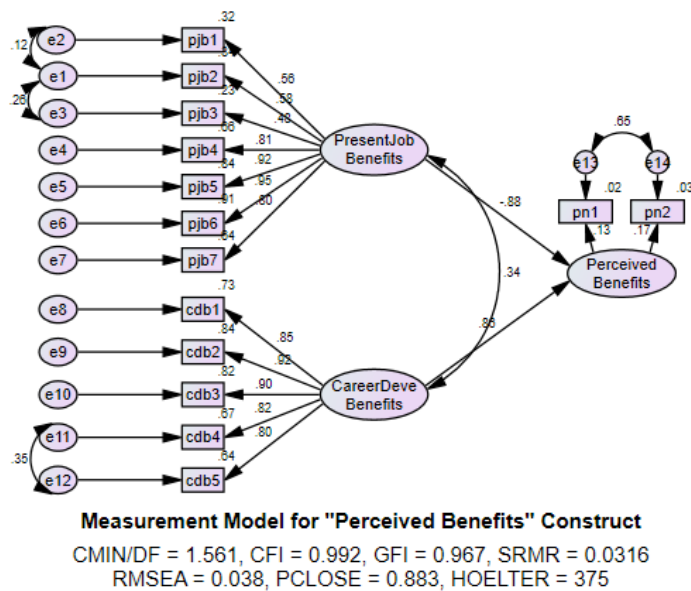RMSEA = 0.038, PCLOSE = 0.883, HOELTER = 375

Figure 4: Multi-dimensional formative model of Perceived Benefits Construct.

This study aimed to investigate the moderation effect of skepticism. The estimation of the structural model revealed that skepticism has significant moderation effects. Moderation effects are difficult to interpret without a graph. Graphs help in evaluating the effect of the independent variable at different values of the moderator. Figure 5 illustrates the moderation effect of skepticism on the relationship between perceived training Quality and perceived benefits. The moderation effect also known as interaction effect depends on the sign and the power of the path coefficient of a moderated relationship. The path coefficient of the moderating effect of top management commitment has a value of 0.02 at $p<0.05$. The positive path coefficient of an effect that moderates a positive direct relationship conclude that causal power of training quality to develop benefit feel will go down in value as favourable perceptions about skepticism occurs In case of employees with low level of feeling about skepticism, the formation of benefit feel from training quality is relatively high in comparison with employees having high impact towards modifier. A steady development of benefit feel is found for employees who perceive low levels of skepticism (Figure 6).

The relationship between other variables in the study are also explained in the following Figure 7. It shows the relationship between significant relationship between training quality and the antecendent variables, trainee motivation and management orientation. It also shows the significant relationship between benefits and the antecendent trainee motivation and management orientation. From the figure it can be noticed that the trainee motivation shows a linear trend with respect to both training quality and benefits where as there is a slight nonlinear relationship existing between management orientation with training quality and benefits.
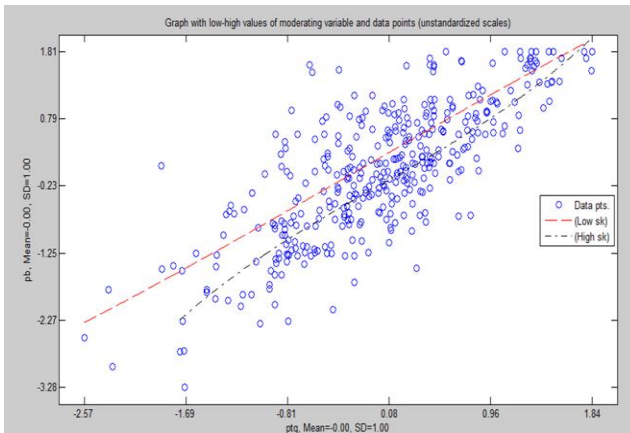
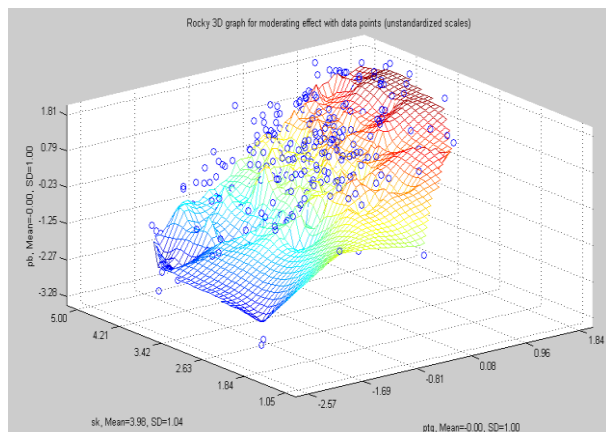**Figure 5:** Relation between PB and PTQ vs SK.

Figure 6: Relation between PB and PTQ vs SK depicted by Rocky Plot.

Training and Development issues have started to gain significant attention in organisations world over. Unstable business climate and exponential growth in technology necessitate enhancing the calibre of employees intensively as well as extensively. Training improves and shapes the employees' knowledge, skills, attitudes and behaviors. It bridges the gap between job requirements and employees' present capabilities. It not only increases productivity, but also motivates the workers by imparting vital information they need to perform the job.

The need for training has to be analyzed to identify the existing problems and tailor training programmes as per the organisational objectives and employee needs. The research stems from the fact that measure of training needs is one of the most basic and common forms of assessments used by HRD professionals in the workplace. Need assessments help to determine when training is required and when it is not. Therefore, there is a dire need for conducting regular surveys to examine avenues for training in order to cope with the present day challenges faced by the IT organisations. Time and

expenses are the main obstacles for these companies. Academic surveys can fill this gap per se as well as pave the way for new thinking and theorization based on first-hand knowledge. With these objectives in mind, lots of data have been gathered by the researcher from a cross section of employees across the country in the IT sector.
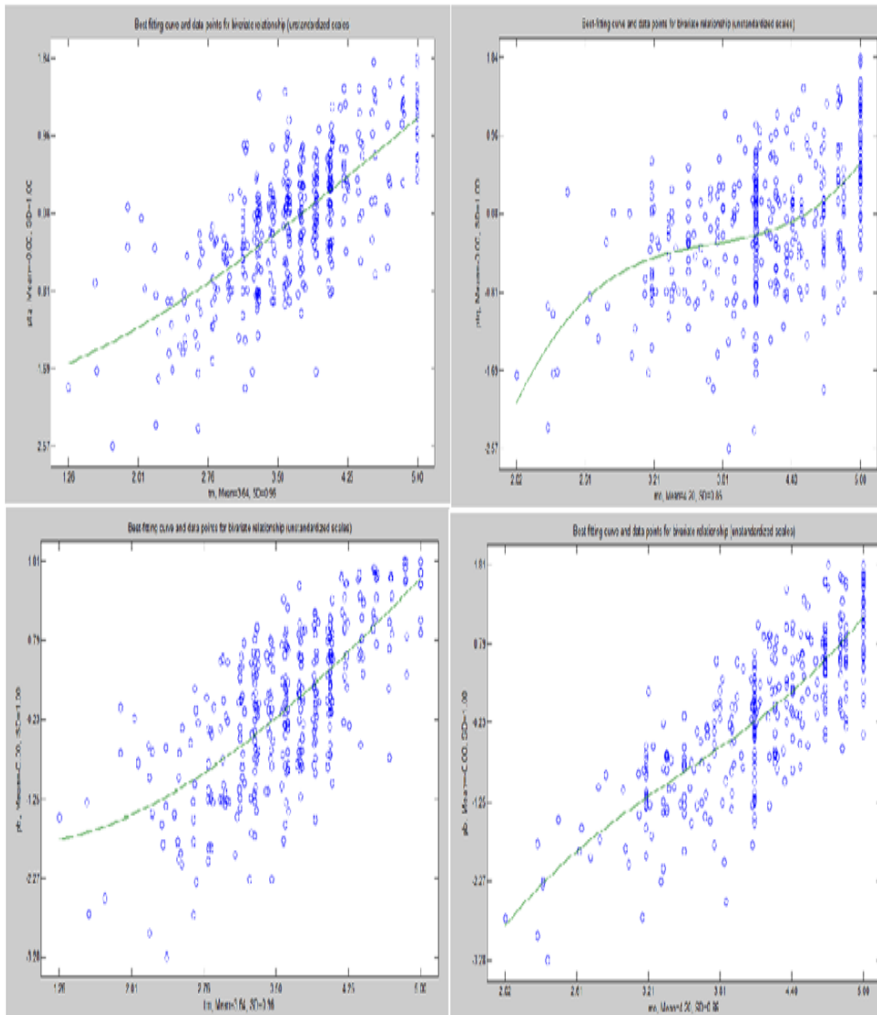

Figure 7: Relationship between variables.

Absolute values of univariate skewness indices greater than 3.0 seem to describe extremely skewed data sets and, kurtosis greater than 10.0 may suggest a problem. Here, none of the values are above this limit and hence univariate normality can be generally assumed [20-22].

Since p values in general are above 0.05 randomness of data is assumed. Durbin-Watson statistics should be between 1.5 to 2.5 confirms Independence of Observations. Univariate outliers are verified using Z scores. Z scores above absolute 4 were treated as outliers and removed. As none of the leverage values were above 0.5 absence of

multivariate outliers established [23-25].

Perceived training quality is a multi – dimensional, multi – scale variable; the perceived training quality construct was taken as the mediating variable in the study and contained 20 items after content and face validity through experts opinion. With the 20 items, EFA was conducted to identify the dimension structure. After identifying the dimension structure, it need to be confirmed using CFA. CFA involves a two stage procedure, in the first stage measurement models for the latent constructs were validated and in the second stage the structural model linking all the first order dimensions was validated on verification with model fit indices.

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was 0.880 and Bartlett's test of sphericity was significant (p<0.001) with a chi square value of 4088 with 190 degrees of freedom confirming the goodness of data for further analysis. The exploratory maximum likelihood factor analysis identified 4 components with Eigen value greater than 1, together explained over variance of 63.60 percent. The factor structure developed from EFA has got adequate loading for each factor with minimum chance for cross loading. The 20 items could be classified into 4 factors in alignment with the pre conceptualized pattern. The four factors are trainer quality with seven items, content quality with four items, delivery quality with four items and infrastructural quality with five items.

Reliability of the scales for latent variables were established as Cronbach's alpha values for scale items to corresponding variables were above threshold limit of 0.7. Perceived benefits is a multi – dimensional, multi – scale variable; the perceived benefits construct was taken as the dependent variable in the study and contained 12 items after content and face validity through experts opinion. With the 12 items, EFA was conducted to identify the dimension structure. After identifying the dimension structure, it need to be confirmed using CFA. CFA involves a two stage procedure, in the first stage measurement models for the latent constructs were validated and in the second stage the structural model linking all the first order dimensions was validated on verification with model fit indices.

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was 0.899 and Bartlett's test of sphericity was significant (p<0.001) with a chi square value of 3430 with 66 degrees of freedom confirming the goodness of data for further analysis. The exploratory maximum likelihood factor analysis identified 2 components with Eigen value greater than 1, together explained over variance of 69.69 percent [26,27]. The factor structure developed from EFA has got adequate loading for each factor with minimum chance for cross loading. The 12 items could be classified into 2 factors in alignment with the pre conceptualized pattern. The two factors are present job benefits with seven items and career development benefits with five items.

Reliability of the scales for latent variables were established as Cronbach's alpha values for scale items to corresponding variables were above threshold limit of 0.7. Model

fitness with data established as values of APC, ARS, AARS were with p values less than 0.05 and since all other indices were found to have acceptable values. Recommended effect sizes (f-squared) of 0.02, 0.15, and 0.35, respectively for small, medium, or large effect [28,29].

p values associated with the loadings of the indicators be lower than .05; and that the indicator loadings be equal to or greater than 0.5; cross loading less than 0.5 for confirming indicator significance and convergent validity. The loading were found more than 0.5 with corresponding p values less than 0.05.

As all values were acceptable both validity and reliability at multivariate level can be confirmed. The square root of the average variance extracted should be higher than any of the correlations involving that latent variable and all correlations to be significant to conclude discriminant validity. Model fitness with data established as values of APC, ARS, AARS were with p values less than 0.05 and since all other indices were found to have acceptable values.

p values associated with the loadings of the indicators be lower than .05; and that the indicator loadings be equal to or greater than 0.5; cross loading less than 0.5 for confirming indicator significance and convergent validity. The loading were found more than 0.5 with corresponding p values less than 0.05. As all values were acceptable both validity and reliability at multivariate level can be confirmed.

The square root of the average variance extracted should be higher than any of the correlations involving that latent variable and all correlations to be significant to conclude discriminant validity. As the perceived training quality increases, there is an increased benefit perception for a low skeptic customer than a highly skeptic customer. Levene's test of homogeneity was performed to check whether the assumption of homogeneity is satisfied. The result gave a p value greater than 0.05, concluding the population variances of both groups are approximately equal.

The p value (at 10% significance) in the above shown independent sample test table suggests that there is difference in perception based on gender on variables, delivery qualities, career development and skepticism. Levene's test of homogeneity was performed to check whether the assumption of homogeneity is satisfied. The result gave a p value greater than 0.05, concluding the population variances of each group are approximately equal.

For the analysis of the research model, instead of covariance based structural equation modelling, a variance based or component based Partial least square (PLS) approach was adopted in this study. PLS-based SEM has several key advantages over covariance-based SEM, including the following:

- •   It always yield a solution, even in complex models

•   It does not require variables to meet parametric analysis criteria, such as multivariate normality and large sample sizes

•   It enables the estimation of parameters in models with formative LVs as well as reflective and doesn't give rise to identification problems as the case in Amos 22.0.

Most relationships between variables describing natural and behavioural phenomena seem to be nonlinear, with U-curve and S-curve relationships being particularly common [30]. WarpPLS 5.0 identifies nonlinear (or "warped", hence the name of the software) relationships among LVs and corrects the values of path coefficients accordingly. Hence in this study, WarpPLS 5.0 was used for analysis of relationships among latent variables. The main features of Warp PLS 5.0 are

•   It estimates P values for path coefficients automatically and hence significance can be easily established.

•   It estimates several model fit indices for checking whether data is well represented by the model.

•   It enables evaluation of measurement model as well as structural model simultaneously

•   The software allows users to view scatter plots of each of the relationships among LVs together with the regression curves that best approximate those relationships.

•   It calculates variance inflation factor (VIF) coefficients for LV predictors associated with each LV criterion.

•   It pre-process the data before SEM analysis and hence make it easy to correct problems with the data, such as identical column names, columns with zero variance, and missing values

To assess the model fit with the data, it was recommended that the p-values for average path coefficient (APC), average r-squared (ARS) and average adjusted R-squared (AARS) should be with p<0.05. In addition, it was recommended that the average variance inflation factor (AVIF) be lower than 5. The various quality criteria for assessing the psychometric soundness of the model is reported in Table 8 below.

Table 8: Fit and Quality Guidelines for PLS Models.

Sl. No	Consideration		Guideline (WarpPLS 5.0)	
			Reflective constructs	**Formative constructs**
1	Goodness of fit criteria	1	"p" values for Average path coefficient (APC), Average R-squared (ARS) and Average adjusted R-squared (AARS) to be less than 0.05	
		2	Average full collinearity VIF (AFVIF) ok if ≤5, good ≤3.3	

		3	Average block VIF (AVIF), ok if ≤5, good ≤3.3	
		4	Tenenhaus GoF ;small ≥0.1, medium ≥0.25, large ≥0.36	
		5	Sympson's paradox ratio (SPR) acceptable if ≥0.7, ideally=1	
		6	R-squared contribution ratio (RSCR) acceptable if ≥0.9,	
		7	Statistical suppression ratio (SSR) acceptable if ≥0.7	
		8	Nonlinear bivariate causality direction ratio, good if ≥0.7	
2	Cronbach alpha coefficient		>0.7	NA
3	Composite reliability		>0.7	NA
4	Average variance extracted		>0.5	>0. 5
5	Convergent validity		p values associated with the loadings be lower than .05; and that the loadings be equal to or greater than 0.5; cross loading less than 0.5	VIF<5:all indicator weights should be with p<0.05
6	Discriminant validity		The square root of the average variance extracted should be higher than any of the correlations involving that latent variable	The square root of the average variance extracted should be higher than any of the correlations involving that latent variable
7	Effect sizes of Path Co-efficient		Effect sizes (f-squared) of 0.02, 0.15, and 0.35, respectively for small, medium, or large effect (Cohen, 1988)	
8	Predictive Validity		Positive higher value of Stone-Geisser Q-squared co-efficients	

The research model estimated using WarpPLS 5.0 is illustrated in Figure 8 below. The significant indicators identified after confirmatory factor analysis was only used for model estimation. The model emerged as a well fit model with admissible fit criteria and other quality guidelines. Expect two paths all other paths emerged as significant as p values were less than 0.05. Various fit criteria are reported below.

• Average path coefficient (APC)=0.270, P<0.001
• Average R-squared (ARS)=0.737, P<0.001
• Average adjusted R-squared (AARS)=0.735, P<0.001
• Average block VIF (AVIF)=1.449, acceptable if ≤5, ideally ≤3.3

- Average full collinearity VIF (AFVIF)=3.702, acceptable if ≤5, ideally ≤3.3
- Tenenhaus GoF (GoF)=0.647, small ≥0.1, medium ≥0.25, large ≥0.36
- Sympson's paradox ratio (SPR)=1.000, acceptable if ≥0.7, ideally=1
- R-squared contribution ratio (RSCR)=1.000, acceptable if ≥0.9, ideally=1
- Statistical suppression ratio (SSR)=1.000, acceptable if ≥0.7
- Nonlinear bivariate causality direction ratio (NLBCDR)=0.938, acceptable if ≥0.7

It was found that, all the above fit criteria were met and that the model has acceptable predictive and explanatory quality as the data is well represented by the model. The loading of all items used to measure various latent variables were found adequate with p values less than 0.05.Various other quality criteria's were found above threshold limits as illustrated in Table 8.
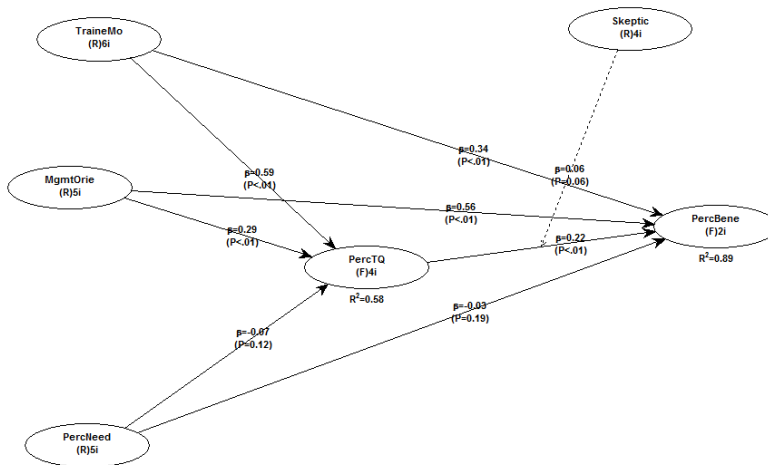

Figure 8: Research Model.

As a part of the study the training programs that happen through a facility was alone taken into consideration. Training that happens with the help of internet or any other means where the trainer is far from the trainees is not considered for the study. Hence in future that can be considered for study. An extension of this would be training that can happen with the help of a social media or a social networking site like Facebook. This would promote free education for all the needy and also ensure a wide spread reach of knowledge.

Here again non IT like hardware or manufacturing of these materials are not again taken which would always follow a different set of fashion for training the people. When it comes to manufacturing sector just theory explanation is not alone sufficient but also a real time experience of how these machines would work also need to be considered. And this would throw light on various other training methods which would give a much better experience of training. In future it can also be considered for a study.

Due to a limitation of time only participant observation was done and a formal

ethnographic way of data collection was not employed. I feel that if we could include those also it would give more details on the data that is collected and also give a varied exposure of the concept and data that is been studied on.

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