

AN EMPIRICAL STUDY ON TRAINING NEED ANALYSIS

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Abstract

This paper describes the results of a qualitative study, which investigates the training needs of IT employees. Training Needs Analysis (TNA) is a review of learning and development needs of the employees within an organization. It considers the skills, knowledge and behaviour that people need, to develop themselves effectively. The main aim of this study is to identify the factors that contribute to Training Need Analysis. After identifying the factors, significance of association was tested by chi square. Structural Equation Model was framed to identify the model fitness of Training Need Analysis. The outcome of Training Need Analysis should be a robust training and development plan, linked to organisational, team and individual objectives.

Key words: *Training Need Analysis, Competencies, Knowledge Sharing and Structural Equation Model*

Introduction

The revolution of change occurring in organizations driving people towards greater and greater performance have been documented in literature over the past 2 decades. The main source of this revolution is the growing realisation that strict controls, greater work pressure, more clearly defined jobs, and tighter supervision have, in the last few years, run their course in terms of their ability to give productivity gains to organizations. Today's work environment requires employees to be skilled in performing complex tasks in an efficient, cost-effective and safe manner.

Training is no longer seen as being a separate entity from business strategy. Organizations are recognizing the significant drives that have increased the use of training systems and are becoming increasingly concerned about evaluating the pre training and post training phases in order to determine whether training meets their goals. The training, development and education of employees at all levels in organizations are now regarded as vital components in meeting international benchmarking. The difference between actual level of job performance and the expected level of job

performance indicates the direction and quantum of training needed.

Broad overview of Training & Related concepts

Milton Hall defines "Employee Training" as the process of aiding employees to gain effectiveness in their present and future work, through development of appropriate habits of thought and action, skill, knowledge and attitudes. Training aims at increasing the effectiveness with which the functions of an organisation are carried out by increasing the effectiveness of its personnel

Meaning of training need analysis : The process of identifying training needs in an organization for the purpose of improving employee job performance.

Meaning of Needs: A need is defined as a discrepancy or gap between the way things are and the way things ought to be (Van Dyk et. al, 2001:179) ^[1]. Needs refers to the things that people must possess. They are often contrasted with wants, which are more discretionary. In this study, the term need refers to the gap that exists between the skills employees possess as compared with the skills that they are supposed to have acquired as per the requirement of the

post. Needs are classified as Normative needs, Organizational needs, Felt needs and Comparative needs.

A needs analysis is defined by Van Dyk et al. (2001) ^[1] as the detailed investigation of an apparent performance problem in order to establish real causes or needs of the situation and to establish which of these may be addressed by training.

Meyer (2000) ^[2] defines needs analysis as the act and process of separating any material or abstract entity into its constituent elements, which involves determining its essential features and their relations to one another. The terms analysis and assessment are used interchangeably in the context of determining training needs.

Types of Needs Analyses: Many need assessments methods are available for use in different employment contexts. Sources that can help us determine which needs analysis is appropriate for the situation are listed below

- a) **Organizational Analysis:** An analysis of the business needs or other reasons for which the training is required. It is the analysis of the organization's strategies, goals, and objectives. What is the overall organization trying to accomplish? The important questions being answered by this analysis are who decided that training should be conducted, why a training program is seen as the recommended solution to a business problem, what has been the history of the organization with regard to employee training and other management interventions.
- b) **Person Analysis:** Analysis dealing with potential participants and instructors involved in the process. The important questions being answered by this analysis are who will receive the training and their level of existing knowledge on

the subject, what their learning style is, and who will conduct the training. Do the employees have required skills? Are there changes to policies, procedures, software, or equipment that require or necessitate training?

- c) **Work analysis / Task Analysis:** It is the analysis of the tasks being performed. This is an analysis of the job and the requirements for performing the work. Also known as a task analysis or job analysis, this analysis seeks to specify the main duties and skill level required. This helps ensure that the training which is developed will include relevant links to the content of the job.
- d) **Performance Analysis:** Are the employees performing up to the established standard? If performance is below expectations, can training help to improve this performance? Is there a Performance Gap?
- e) **Content Analysis:** It is the analysis of documents, laws, procedures used on the job. This analysis answers questions about what knowledge or information is used on this job. This information comes from manuals, documents, or regulations. It is important that the content of the training does not conflict or contradict job requirements. An experienced worker can assist (as a domain expert) in determining the appropriate content.
- f) **Training Suitability Analysis:** Analysis done to decide whether training is the desired solution. Training is one of several solutions to employment problems. However, it may not always be the best solution. It is important to determine if training will be effective in its usage.

- g) Cost-Benefit Analysis: Analysis of the return on investment (ROI) of training. Effective training results in a return of value to the organization that is greater than the initial investment to produce or administer the training.

Review of Literature

Training is a learning experience in that it seeks a relatively permanent change in an individual that will improve his or her ability to perform on the job (Nel, Gerber, Van Dyk, Haasbroek, Schultz, Sono and Werner, 2004) ^[3]. Swanepoel, Erasmus, Van Wyk and Schenk (2003) ^[4] confirm that employee training is job related learning that is provided by employers for their employees. Masitsa (2005) defines training as a process of preparing or being prepared for a job with the focus on enhancing the specific skills and abilities required to perform the job. Martins (2005) ^[5] defines training as any activity empowering an employee to implement a new functional operation. Cavaleros, Van Vuuren and Visser (2002) define training as an experience, discipline or regimen that causes people to acquire new predetermined behaviours.

Training, according to Erasmus and Van Dyk (1999), ^[4] is regarded as a systematic and planned process to change the knowledge, skills and behaviour of employees in such a way that organizational objectives are achieved. It is a learning experience in that it seeks a relatively permanent change in an individual that will improve his or her ability to perform on the job.

De Bruin, De Bruin, Derksen and Cilliers-Hartslief (2005) ^[7] conducted research on predictive validity of general intelligence for adult basic education and training outcomes. This study explored whether scores on intelligence tests and personality questionnaires can predict performance in an Adult Basic Education And Training (ABET) programme. The relationships between measures of general intelligence, personality traits, practical and academic training achievement of people with limited formal

education were investigated. The results showed that non-verbal intelligence tests and personality inventories can be potentially useful in the prediction of performance in an ABET programme. This correlation showed that intelligence tests show predictive validity even for completely unskilled jobs.

Scope of the Study

There are several manifestations of Training Need Analysis. In order to enable the study of intra organizational variations, an attempt has been made to obtain data from Information Technology personnel across various companies in South India. The study is restricted to 26 companies, 22 IT companies from Chennai and 4 companies from Bangalore. The researcher used both primary data and secondary data. The interview was conducted for gathering the IT employees responses.

Objectives Of The Study

The following objectives were formulated.

- a. To identify the factors affecting Training Needs.
- b. To identify the association between the study variables.

Data Analysis

For data collection, this study employed following statistic techniques, like factor analysis, chi-square test and structural model equation to analyze data.

Sample Design

Convenient sampling technique was adapted to select sample employees. Chennai and Bangalore IT employees were selected for the purpose of the study. The total number of questionnaires distributed were 750 of which 675 were received and only 516 questionnaires fulfilled the conditions of the study.

The Employees were requested to indicate their agreement to the questions. A Likert item is simply a statement which the respondent is asked to evaluate according to any kind of subjective or objective criteria generally the level of agreement or disagreement is measured.

Hypotheses:

H₀ 1: There is no significant association between factors with their Training Need in the Information Technology Sector.

H₀ 2: There is no significant model fit among the dimensions of Training Need Analysis.

Factor Analysis

Aggregate data collected from all the 516 respondents from IT companies by using the instrument, were factor analyzed to know its internal structure and grouping of items. Factor analysis was used to empirically assess the

dimensionality of the scales which is used for testing the hypotheses. The questions measuring the design features of Training Need Analysis were factor analyzed using the principal component method. The Bartlett's Test of Sphericity (P equal to 0.000) indicates that the correlation matrix has significant correlations among some of the variables. Kaiser-Meyer-Olkin measure of sampling adequacy showed that 0.60 is good sampling adequacy. Further tests were used to determine the number of factors to be extracted; nine -factor structures were suggested.

This analysis was conducted by using Principal component's method with varimax rotation. The rotation revealed 9 factors with Eigen value greater than 1 and factor loading exceed ± 0.62 explaining 71 percent of total variance. It yielded 9 factors with Eigen value more than 1 (refer table 1) the table revealed that the loading vary from 0.62 to 0.88.

Table 1. Factor analysis

Items	Item Loading	Percentage of variance
Attitude (A)	0.620	38.73 percent
Skills (S)	0.770	31.29 percent
Competencies (C)	0.778	51.52 percent
Education (E)	0.723	52.60 percent
On the job Training	0.880	61.78 percent
Off the job Training	0.781	45.28 percent
Absorptive capacity (AC)	0.850	52.54 percent
Knowledge sharing (KS)	0.790	29.00 percent
Training Need Analysis (TNA)	0.860	69.78 percent

Source: Primary Data

After factor analysis, 9 factors were named as 1.Attitude, 2.Skill 3. Competencies , 4.Education, 5. On the job training , 6.Off the job training , 7. Absorbing capacity, 8.Knowledge sharing and 9.Training Need Analysis (TNA) .

Chi – Square Test

H₀ 1:There is no significant association in between Factors with their Training Need in the Information Technology Sector.

H₁ 1:There is significant association in between Factors with their Training Need in the Information Technology Sector.

Table 2 Chi-square test for Factors with their Training Needs

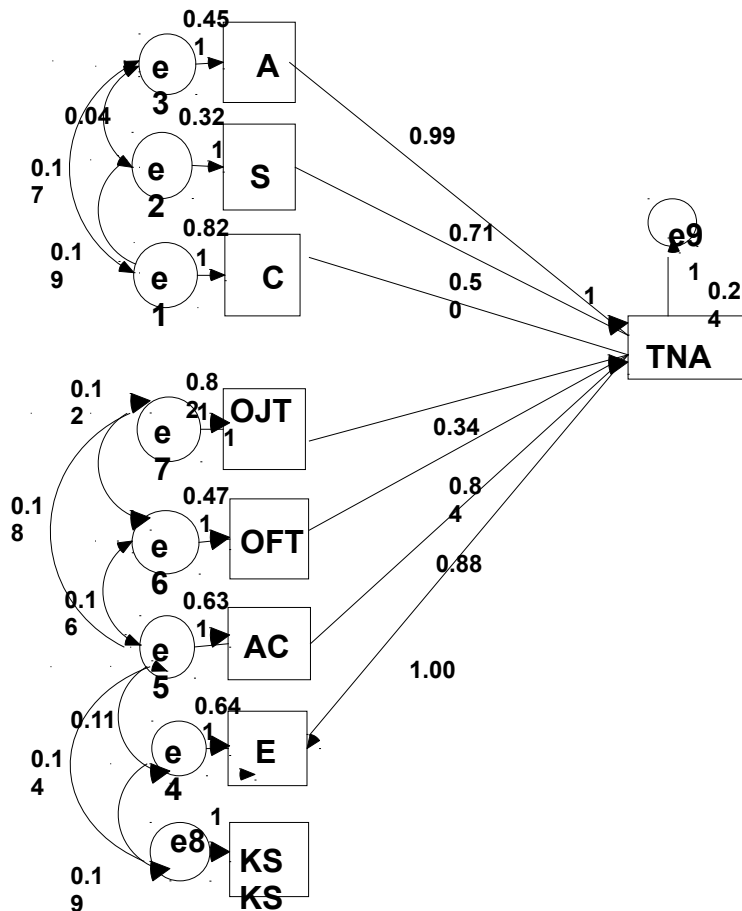
Factors	Training Need Analysis					Chi Square Value	P Value
	Low	Average	High	Row Total			
Low	40 (43.5) [54.1]	52 (56.5) [14.1]	-	92 (17.8)	208.52	0.000**	
Average	32 (9.8) [43.2]	272 (83.4) [73.5]	22 (6.7) [30.6]	326 (63.2)			
High	2 (2.0) [2.7]	46 (46.9) [12.4]	50 (51.0) [69.4]	98 (19.0)			
Column Total	74 [14.3]	370 [71.7]	72 [14.0]	516 [100.00]			

Significant * $p < 0.05$ ** $p < 0.01$

Since P value is less than 0.01, and Chi-square value being 208.52, there is a statistically significant association between the factors and their Training Needs. Therefore the null hypothesis is rejected and alternative hypothesis is accepted.

Path Analysis

Data were analyzed by path analysis. It is a multivariate analytical methodology for empirically examining sets of relationships in the form of linear causal models (Li, Ching 1975) ^[8]. Structural equation modeling (SEM) is based on causal relationships, in which the change in one variable is assumed to result in a change in another variable.



Legend:

- | | |
|---------------------------|-----------------------------|
| A: Attitude | AC: Absorbing capacity |
| S: Skill | E: Education |
| C: Competencies | TNA: Training Need Analysis |
| OJT: On the Job Training | KS: Knowledge Sharing |
| OFT: Off the Job Training | |

The original theoretical model was developed to investigate the relationship among the factors affecting Training Need Analysis. Several indexes were calculated and taken into account for identifying the final proposed model. These values provided evidence for better fitting models; they are GFI (Goodness of Fit Index), AGFI (Adjusted Goodness of Fit Index) and NFI (Normed Fit Index).

The analysis of the structural model reported in the figure, shows a graphical depiction on the structural model with path coefficients and computed t-values displayed for each path. The analysis presented in the figure shows that all paths in the structural model are statistically significant. The path based on the results of study is checked for the extent of replication.

TABLE 3 Structural Equation Model Indices

Indices Of Training Need Analysis	MODEL
Goodness of fit index (GFI)	0.97
Adjusted Goodness of fit index (AGFI)	0.93
Root mean square residual (RMR) Mulaik et al., (1989)	0.45
Parsimonious (PGFI)	0.37
NFI	0.82
Hoelter Critical N (99% CI)	267

The results of path analysis for the model shown in the table 3, suggest a good fit with the data. The parameters are statistically significant, supporting the theoretical basis for assignment of indicators to each construct.

Limitations:

- 1.This research has included 516 observations; the findings should be confirmed through a larger sample for generalization.
- 2.This study is delimited to only one particular professional group, i.e. Information Technology employees. So the results cannot be generalized to all companies.
- 3.Thirdly, the data collection was restricted to IT personnel in South India consequently, due to the cultural factors that characterize the sample under investigation, the results may not be confirmed when examining the same sector in other parts of the country.

Conclusion:

An organization is as good as its people. If an organization is good, its people enjoy the fruits. The people manning the organization, whether be their category or level, cannot disown the responsibility of making it good or bad. Competence Based Training Need Analysis

Diagnostic tool helps in identifying job related Training needs. Further analysis would help the organization in identifying particular training need of a team. Training should be offered according to level of expertise (basic, intermediate, and advanced). Training need Analysis is a most effective method of accessing, measuring and evaluating the employees in order to improve organizational and individual performance. Once the data is gathered at organisational, team and individual level, it bring together learning and development plan. The plan should not only identify the training requirements within the organisation, but should prioritise them and set out the ways in which the requirements can be met, the resources needed, the timescale, and the metrics for the evaluation for the training.

References:

1. Van Dyk, P.S., Nel, P.S., Loedolff, P. Van Z. & Haasbroek, G.D. (2001). Training management: A multidisciplinary approach to human resources development in Southern Africa. Cape Town: Oxford University Press.
2. Meyer, M. (2000). Outcomes-based education: Back to the basics or a new paradigm for training staff. Retrieved May 17, 2005, from the World Wide Web: <http://www.astd.co.za>.

3. Nel, P.S., Van Dyk, P.S., Haasbroek, G.D., Schultz, H.B., Sono, T. and Werner, A. (2004). Human Resources Management. Cape Town: Oxford University Press.
4. Swanepoel, B., Erasmus, B., Van Wyk, M. and Schenk, H. 2003. South African Human Resource Management, Theory and practice. 3rd ed. Cape Town: Juta.
5. S.J. Martin (2005) 'Evaluation, inspection and the improvement agenda: Contrasting fortunes in an era of evidence based policy making', *Evaluation* 11 (4) pp. 496-504
6. Cavaleros, C., Van Vuuren, L.J. and Visser, J.D. (2002). The effectiveness of a diversity awareness training program. *South African Journal of Industrial Psychology*, 28(3), 50-61.
7. De Bruin, K., De Bruin, G.P., Dercksen, S. & Cilliers-Hartslief, M. 2005. Predictive validity of general intelligence and big five measures for adult basic education and training outcomes. *South African Journal of Psychology*, 35(1):46-57.
8. Li, Ching Chun (1975). Path Analysis: A Primer. Pacific Grove, California: The Boxwood Press.
9. Li, Ching Chun, Sati Mazumdar and B. Raja Rao (1975). "Partial Correlation in Terms of Path Coefficients." *The American Statistician*, 29:89,90

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