TRAINING AND ORGANIZATIONAL PERFORMANCE: THE MEDIATING ROLE OF E-LEARNING IN INFORMATION TECHNOLOGY INDUSTRY – AN EMPIRICAL STUDY

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Abstract: The purpose of this research paper is to investigate the impact of training programmes on organizational performance and also to identify the mediating role of E-Learning on organizational performance using the structural equation modelling approach. The study was conducted among the 350 employees working in Information Technology industry, Chennai city. The quota sampling method was used to choose the respondents from the selected IT companies. The results of the study revealed that there is a robust relationship between the impact of training on organizational performance, and the E-Learning also mediates the impact of training on organizational performance.
Keywords: Impact of training, E-Learning, organizational performance, IT industry.

INTRODUCTION

Training is driving force of any industry which updates the human capital with latest technologies and upgrade them with required skills and abilities to perform the assigned task efficient and smarter manner. The training kindles the minds of the people so that they can apply enhanced creative and innovation in problem solving and decision-making. Training also ensures optimum utilization of all kinds of resources irrespective of any industry.

The two decade old Information Technology industry in India faced major transformations and challenges over a period of time, but still it is able to serve the major portion of Information Technology market in worldwide through the well-trained, talented and dedicated professionals. Like other industry, the technological world has its influence in IT industry also, not in tardy way, but in rapid manner. So obviously, the professionals in IT industry has to spend their considerable portion of their personal and professional time in learning the technology and acquiring the abilities through training and practice. Therefore, this study attempted to investigate the impact of training programmes on organizational performance and the mediating role of E-Learning in Information Technology industry context using Structural Equation Modeling (SEM) approach.

THEORETICAL BACKGROUND AND HYPOTHESES

This section of the research paper deals with the theoretical background and hypothesis development of the research topic.

Training and E-Learning

Training plays a key role in an organization. It has the effect on almost all Human Resource related concepts such as productivity, job performance, employee motivation, job satisfaction (Akbar Jan et al., 2015), organizational climate (Subramani et al., 2016), etc. It indirectly contributes for the organizational performance by influencing individual performance.

E-Learning ensures the company to sustain and grow in the hyper-competitive business environment. E-Learning prerequisites to be both a formally reinforced strategy and an integral part of the organization's corporate culture. The learning and development strategy of an organization must spot both employees' distinct talent development needs and the corporates' needs. The formal E-Learning strategy is a commitment to implementation of corporate training and enables measurement of returns through specific objectives. Recent studies also proved that there is a robust relationship between training through E-Learning (Pilar Jerez Gomez et al, 2006).

E-Learning and Organizational Performance

E-learning is a web-based learning ecosystem for the dissemination of information, communication, and knowledge for education and training (Cidral et al., 2018). 'E-Learning' creates 'Learning Organization'. Learning organization is the one in which people continually develop their capacity to achieve results they desire, whereby new patterns of thinking are nurtured, collective aspirations are freed and people learn to learn together (Senge, 1990). Robelo and Gomes (2011) defined the term 'learning organization' as a process or capacity within organization which enables it to acquire, access and revise organizational memory thus providing directions for organizational action. A general definition of organizational performance by Stankard (2002) noted that it is the product of interactions of different parts or units in the organization. Many earlier researches established that there is a strong relationship between learning organization and organizational performance. (Alexandra Luciana, 2013; Norashikin Hussein et al., 2014; Anna Zgrzywa-Ziemak, 2015). Chien-Pei Ko and Chen Chen Ko (2012), through their study found that training quality of e-learning has significant correlation with organizational performance.

Impact of Training on Organizational performance

Training has the specific role in the accomplishment of an organizational goal by integrating the interests of organization and the workforce (Stone, 2002). Training act as a key element in improvising the capabilities of the employees in an organization. Organizational performance is the collective form the individual performance in an organization, hence the training is imparted to the individuals in an organization to enhance the organizational performance. (Raja Abdul Ghafoor Khan et al., 2011; Mercedes Ubeda-García et al., 2013).

Conceptual Model and Hypotheses development

Based on the literature review, the conceptual model was developed by integrating the three main constructs such as impact of training, E-Learning and organizational performance and it was portrayed in Figure 1.
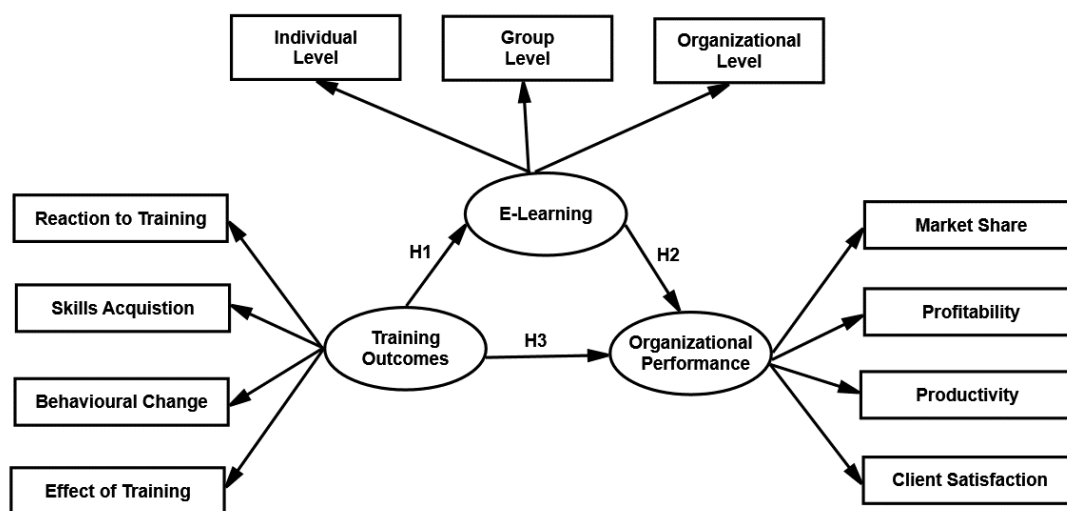

Figure 1. Conceptual Model – Integration of the constructs

The following hypotheses can be formulated based on the conceptual model shown in Figure 1.

H1: There is a relationship between the impact of training and E-Learning.
H2: There is a relationship between the E-Learning and organizational performance.
H3: There is a relationship between the impact of training and organizational performance.

METHODOLOGY

This research followed descriptive research design. Descriptive research design is used to describe the opinion of the respondents about the chosen research area. This research describes the Information Technology employees' perception towards the impact of training on organizational performance and the mediating role of E-Learning.

Data collection and Sampling design

This study utilized both primary and secondary data. The primary and secondary data was collected through survey method of data collection. The structured questionnaire was used as a data collection instrument. The universe of the study is restricted to the employees working in top two Information Technology companies as ranked by NASSCOM in 2016-2017 such as Tata Consultancy services and Infosys company branches located in

Chennai. The quota sampling technique method was adopted to choose the respondents from the population. i.e. from each company 175 employees was selected, hence the sample size of the study is 350.

Scale Development
The structure questionnaire was developed for this study and it was verified against its reliability and validity. The developed scale has four sections such as personal details, training perception scale, E-Learning scale, and organizational performance scale. The reliability of Cronbach alpha coefficient of training perception scale was 0.821, E-Learning scale was 0.792 and organizational performance scale was 0.763.

Training perception assessment scale
The training perception scale (20 items) was developed based on Kirkpatrick training evaluation model which has four levels such as reaction to training (5 items), skills acquisition (5 items), behavioural change (5 items) and effect of training (5 items). It was measured using Likert 5 point scales from 1 – Strongly Disagree, 2 – Disagree, 3- Neutral, 4- Agree and 5 –Strongly Agree.

E-Learning scale
The E-Learning scale (15 items) was developed based on Bontis et al (2002) which has three levels such as Individual level (5 items), group level (5 items), and organizational level (5 items). It was also measured using Likert 5 point scales from 1 – Strongly Disagree, 2 – Disagree, 3- Neutral, 4- Agree and 5 –Strongly Agree.

Organizational Performance scale
The organizational performance scale (20 items) was developed based on Dess and Robinson (1984) which has four levels such as market share (5 items), profitability (5 items), productivity (5 items) and customer satisfaction (5 items). It was measured using Likert 5 point scales from 1 – Very Low, 2 – Low, 3- Moderate, 4- High and 5 –Very High.

RESULTS AND DISCUSSIONS
The data analysis section of the study was further divided into two sections such as descriptive analysis and inferential analysis. The data were analyzed and the results were discussed in this section.

Descriptive Analysis
The descriptive analysis was used to describe the characteristics of the samples through sample size, minimum, maximum, range, mean, standard deviation, variance, skewness and kurtosis. It was assessed using the IBM SPSS 22.0 software package. The table 1 describes the descriptive statistics of the constructs. From the table 1, it is found that effect of training is having the highest mean of 19.877, which is followed by customer satisfaction with the mean value of 19.820. It is also found that, employees are having above the moderate level of perception on the measured constructs, since all the mean values are above 15.0.

Table 1. Descriptive statistics of the Constructs

S. No	Construct	Mean	Std. Deviation
1	Reaction to training	18.351	3.0823
2	Skills Acquisition	18.660	2.7817
3	Behavioural Change	18.503	2.0589
4	Effect of Training	19.877	2.4796
5	Individual Level	18.197	2.9462
6	Group Level	18.631	2.4527
7	Organization Level	19.617	2.3459
8	Market Share	18.860	2.7306
9	Profitability	18.991	2.6737
10	Productivity	18.766	2.0737
11	Customer Satisfaction	19.820	2.4068

(Source: Primary Data)

Inferential Analysis
The Inferential analysis was used to infer the characteristics of the population through the characteristics of the sample. Here, the Structural Equation Modeling (SEM) was adopted to infer the characterizes of population about impact of training on organizational performance and the mediating role of E-Learning using the software package known as IBM AMOS 23.0.

Structural Equation Model on Impact of training on organizational performance and the mediating role of E-Learning

Structural Equation Modeling is a tool to elicit the relationship between two or more measured variables on the latent variable. The Figure 2 portrays the Structural Equation Model which was developed based on standardized regression coefficients.
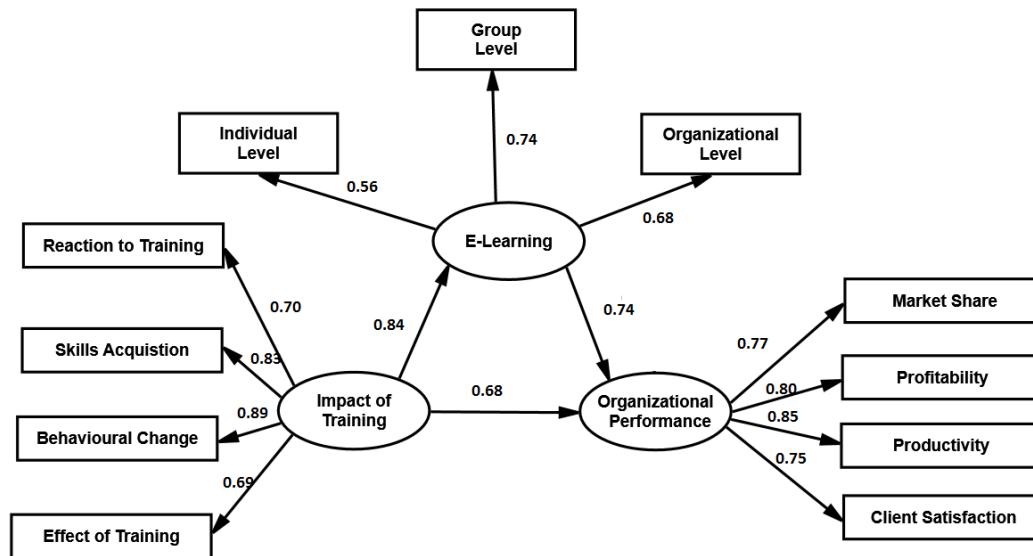

Figure 2. Structural Equation model based on Standardized coefficients

Table 2. Regression coefficients of Conceptual model

Observed Construct		Latent Construct	Unstandardized Estimate	S.E.	Standardized estimate	C.R.	p
E- Learning	<---	Impact of Training	0.884	0.072	0.841	16.243	<0.001**
Organizational Performance	<---	Impact of Training	0.727	0.092	0.676	10.389	<0.001**
Organizational Performance	<---	E-Learning	0.764	0.083	0.743	11.381	<0.001**
Skills Acquisition	<---	Impact of Training	1.122	0.064	0.829	17.485	<0.001**
Behavioural change	<---	Impact of Training	0.875	0.040	0.887	22.108	<0.001**
Reaction to training	<---	Impact of Training	1.000	-	0.702	-	-
Effect of Training	<---	Impact of Training	0.854	0.074	0.690	11.599	<0.001**
Individual Level Learning	<---	E-Learning	1.000	-	0.564	-	-
Organizational Level	<---	E-Learning	0.885	0.059	0.680	15.114	<0.001**
Group Level Learning	<---	E-Learning	1.034	0.051	0.735	20.354	<0.001**
Market Share	<---	Organizational Performance	1.000	-	0.770	-	-
Clients' Satisfaction	<---	Organizational	0.857	0.056	0.751	15.366	<0.001**

Observed Construct		Latent Construct	Unstandardized Estimate	S.E.	Standardized estimate	C.R.	p
		Performance					
Profitability	<---	Organizational Performance	1.025	0.065	0.804	15.760	<0.001**
Productivity	<---	Organizational Performance	0.835	0.041	0.850	20.391	<0.001**

The arrows between the measured variable and the latent variable depicts the path relationship, which was also summarized in table 2 along with its standardized and unstandardized regression coefficients. For example, the unstandardized regression coefficient between the impact of training and organizational performance is 0.957, which means the every unit of increase in impact of training may increase 0.957 units of organizational performance, and this hypothetical relationship is also significant at 1% level.

Table 3. Implied Correlations of the constructs

Construct	1	2	3	4	5	6	7	8	9	10	11
1. Reaction to Training	1	0.582	0.736	0.238	0.458	0.598	0.552	0.567	0.592	0.626	0.553
2. Skills Acquisition	0.582	1	0.735	0.368	0.541	0.705	0.652	0.669	0.699	0.739	0.653
3. Behavioural Change	0.736	0.735	1	0.471	0.579	0.755	0.697	0.716	0.748	0.790	0.699
4. Reaction to training	0.238	0.368	0.471	1	0.45	0.587	0.542	0.557	0.582	0.615	0.543
5. Individual Level	0.458	0.541	0.579	0.45	1	0.674	0.403	0.513	0.536	0.566	0.5
6. Group Level	0.598	0.705	0.755	0.587	0.674	1	0.5	0.668	0.699	0.738	0.653
7. Organizational Level	0.552	0.652	0.697	0.542	0.403	0.5	1	0.618	0.646	0.682	0.603
8. Market Share	0.567	0.669	0.716	0.557	0.513	0.668	0.618	1	0.588	0.736	0.578
9. Profitability	0.592	0.699	0.748	0.582	0.536	0.699	0.646	0.588	1	0.684	0.477
10. Productivity	0.626	0.739	0.790	0.615	0.566	0.738	0.682	0.736	0.684	1	0.603
11. Customer Satisfaction	0.553	0.653	0.699	0.543	0.5	0.653	0.603	0.578	0.477	0.603	1

Table 3 tabulates the implied correlation coefficient between the constructs. All the correlation coefficient values in table 3 is positive, which indicates 'positive correlation' among the chosen constructs. The correlation coefficient value more than 0.5 indicates the strong relationship between the variables. The correlation coefficient between behavioural change and productivity is 0.790, which is followed by the correlation coefficient between skills acquisition and productivity with the value of 0.739.

Table 4. Standardized Direct, Indirect and Total Effects

Construct Name	Direct Effect		Indirect Effect		Total Effect	
	E-Learning	Organizational performance	E-Learning	Organizational performance	E-Learning	organizational performance
E-Learning	--	0.743	--	--	--	0.743
Impact of Training	0.841	0.676	--	0.624	0.841	1.517

Table 4 indicates the direct, indirect and total effect of the observed constructs on latent variable. For example, the impact of training has the direct effect on organizational performance with the regression coefficient of 0.676, whereas through the E-Learning it has the total effect of regression coefficient 1.517, which indicates the E-Learning will boost-up the impact of training on organizational performance. It is also found that the E-Learning has the direct impact on organizational performance with the regression coefficient of 0.743, without the presence of impact of training, which shows that the E-Learning without appropriate training may yield the results on organizational performance, but it will be comparatively lesser than its combination with the impact of training.

Table 5: Model Fit Summary

S. No	Indices Category	Model Fitness Indices	Value	Recommended Values	Result
1.	Absolute Fit Indices	CMIN or Chi Square Value	0.184	P > 0.05 (Wheaton et al, 1977)	Absolute fit
		RMSEA (Root Mean Square Error of Approximation)	0.032	< 0.08 Browne and Cudeck (1993)	Good Fit
		GFI (Goodness of Fit Index))	0.913	> 0.90 Joreskog and Sorbom (1984)	Absolute fit
2.	Incremental Fit Indices	AGFI (adjusted Goodness of Fit Index)	0.926	> 0.90 Tanaka and Huba (1985)	Absolute fit
		CFI (Comparative Fit Index)	0.928	> 0.90 Bentler (1990)	Absolute fit
		TLI (Tucker-Lewis Index)	0.961	> 0.95 Bentler and Bonett (1980)	Absolute fit
		NFI (Normed Fit Index)	0.972	> 0.95 Bollen (1989)	Absolute fit
3.	Parsimonious fit	Chi-square / DF	2.532	2 to 5 Marsh and Hocevar (1985)	Good Fit
4.	Miscellaneous Measure	RMR (Root Mean Square Residuals)	0.037	< 0.08 (Hair et al. 2006)	Good Fit

(Source: Primary Data)

Table 5 shows the model fit summary of the conceptual model. In this table, model fit indices are divided in to four categories such as absolute fit indices, incremental fit indices, parsimonious fit indices and miscellaneous indices. As mentioned in the table 5, all the four categories of indices values are at acceptable level, hence it can be concluded that the conceptual model is found to be fit.   Therefore it is established that the there is a robust relationship between the impact of training on organizational performance and also the E-Learning mediates the impact of training on organizational performance.

CONCLUSION

The industries in the present business world faces the rapid changes because of the technological shifts and hyper competition, which demands the maintaining human intellectual up-to-date according to the trends in technological world. The Information technology industry is the spine of such changes in all the other industries. In order to provide the world class IT services, they employees working in IT industry need to be upgraded themselves with latest programming languages, software, hardware and communication devices. The knowledge and skill may be acquired through appropriate training or E-Learning or in combination of both. The results of the Structural Equation Model has the given the crystal clear information that the E-Learning has the effect on organizational performance, and it can also improvise the magnitude of effect of impact of training on organizational performance.

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