

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 improving 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.

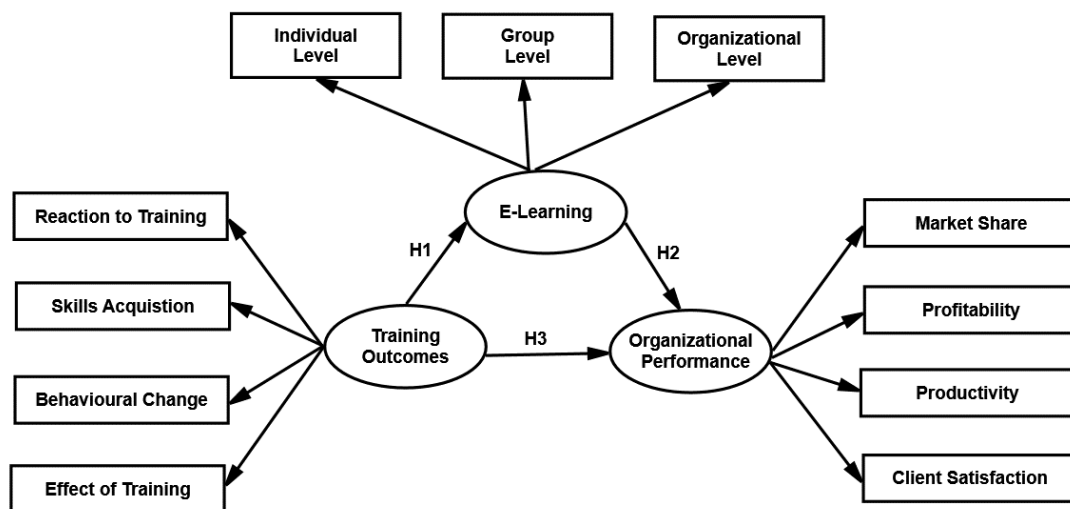


Figure 1. Conceptual Model – Integration of the constructs

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.

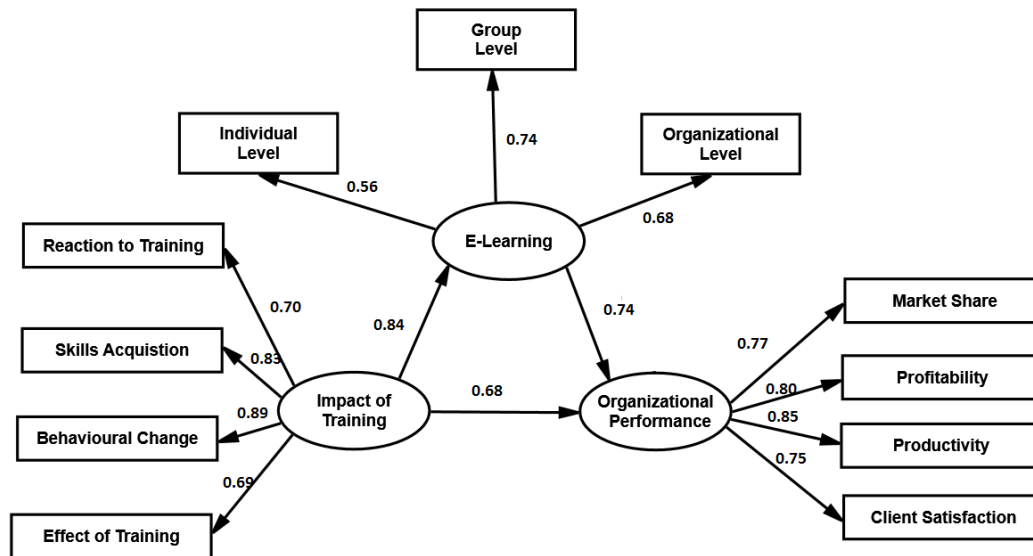


Figure 2. Structural Equation model based on Standardized coefficients

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.

REFERENCES

- Akbar Jan, N., Subramani, A.K., Mamta Gaur & Saravana Mahesan. S. (2015). *Factors impelling job satisfaction among IT Professionals in Chennai*, International Journal of Applied Business and economic Research, Vol. 13, No. 8, pp. 6309-6321.
- Alexandra Luciana. (2013). *E-Learning and Performance. A conceptual model*, proceedings of the 7th International Management Conference, New Management for the New Economy, November 7th-8th, Bucharest, Romania.
- Bentler, P.M. (1990). *Comparative fit indexes in structural models*, Psychological Bulletin, Vol. 107, No. 2, pp.238-246.

- Bentler, P.M. & Bonett, D.G. (1980). *Significance tests and goodness-of-fit in the analysis of covariance structures*, Psychological Bulletin, Vol. 88, pp. 588-600.
- Bollen, K.A. (1989). *A new incremental fit index for general structural equation models*, Sociological Methods & Research, Vol.17, No. 3, pp.303-316.
- Bontis, N., Crossan, M. & Hulland, J. (2002). *Managing an E-Learning system by aligning stocks and flows*, Journal of Management Studies, Vol. 39, No. 4, pp. 437-69.
- Browne, M.W. & Cudeck, R. (1993). *Alternative ways of assessing model fit* In: K. A. Bollen and J. S. Long (Eds.), 'Testing structural equation models' (pp. 136-162). Beverly Hills, CA: Sage.
- Chien-Pei Ko & Chen Chen Ko (2012). *The relationship of training quality in E-Learning and Organizational commitment to Organizational performance in Taiwan Industry*, IERI Procedia 2, pp. 821 – 827.
- Gregory G. Dess, & Richard B. Robinson Jr. (1984). *Measuring organizational performance in the absence of objective measures: The case of the privately-held firm and conglomerate business unit*, Strategic Management Journal, Vol.5, No. 3, pp. 265–273.
- Hair, J., Black, W., Babin, B. & Anderson, R. (2010). *Multivariate Data Analysis*, 7. Upper Saddle River, NJ, USA: Prentice-Hall, Inc.
- Hair, J., Black, W., Babin, B., Anderson, R., & Tatham, R. (2006). *Multivariate data analysis*, 6th edition, Uppersaddle River, N.J.: Pearson Prentice Hall.
- Jerez Gomez, Pilar, Jose Cespedes-Lorente, & Ramon, Valle-Cabrera. (2005). *Organisational learning capability: A proposal of measurement*, Journal of Business Research, Vol. 58, pp.715–725.
- Joreskog, K.G. & Sorbom, D. (1982). *Recent developments in structural equation modeling*, Journal of Marketing Research, pp.404-416.
- Katarzyna Tworek, & Anna Zgrzywa-Ziemak. (2016). *Relations Between IT and E-Learning Capability— Empirical Studies Among Polish Organizations*, Information Systems Architecture and Technology: Proceedings of 37th International Conference on Information Systems Architecture and Technology – ISAT 2016 – Part IV, Volume 524 of the series Advances in Intelligent Systems and Computing, pp.197-207.
- Kirkpatrick, D.L. (1959). *Techniques for evaluating training programs*, Journal of the American Society of Training Directors, Vol.13, pp.3–9.
- Kirkpatrick, D.L. (1976). *Evaluation of training*, In R.L. Craig (Ed.), Training and development handbook: A guide to human resource development, 2nd edition, New York: McGraw-Hill, pp. 301–319.
- Norashikin Hussein, Safiah Omar, Fauziah Noordin, & Noormala Amir Ishak. (2016). *Learning Organization Culture, Organizational Performance and Organizational Innovativeness in a Public Institution of Higher Education in Malaysia: A Preliminary Study*, The Fifth International Conference on Marketing and Retailing (5th INCOMaR) 2015, Procedia Economics and Finance, Vol.37, pp.512-519.
- Raja Abdul Ghafoor Khan, Furqan Ahmed Khan, & Muhammad Aslam Khan. (2011). *Impact of Training and Development on Organizational Performance*, Global Journal of Management and Business Research, Vol. 11, No. 7, pp.23-34.
- Rebelo, T.M. & Gomes, A.D. (2011). *Conditioning factors of an E-Learning culture*, Journal of Workplace Learning, Vol. 23, No. 3, pp.173–194.
- Senge & Peter. (1990). *The Fifth Discipline: the Art and Practice of the Learning Organization*. New York: Doubleday.
- Stankard, M.F. (2002). *Management systems and organizational performance: The search for excellence beyond ISO9000*, Westport, CT: Greenwood Publishing Group.
- Subramani, A.K., Akbar Jan, N., Moideen Batha, H. & Vinodh, N. (2016). *Use of Structural Equation Modeling to Empirically Study the Impact of Organizational Climate on Employees' Work Related Attitude in Information Technology Organizations in Chennai City*, Indian Journal of Science and Technology, Vol. 9, No. 2, pp.1-8.
- Tanaka, J.S. & Huba, G.J. (1989). *A general coefficient of determination for covariance structure models under arbitrary GLS estimation*, British Journal of Mathematical and Statistical Psychology, Vol. 42, No.2, pp.233-239.
- Ubeda-García, Claver Cortes, Marco-Lajara, & Zaragoza-Saez. (2014). *Strategy, training and performance fit*, International Journal of Hospitality Management, Vol. 42, pp.100–116.
- Wheaton, B., Muthen, B., Alwin, D.F. & Summers, G. (1977). *Assessing Reliability and Stability in Panel Models*, Sociological Methodology, Vol.8, No.1, pp 84-136.
- Wilmar Audye Cidral, Tiago Oliveira, Massimo Di Felice, & Manuela Aparicio (2018). *E-learning success determinants: Brazilian empirical study*, Computers & Education, Volume 122, July 2018, pp. 273-290.