ANALYZING AND ENHANCING THE EFFECTIVENESS OF E-LEARNING

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Abstract
The e-learning has made significant change in training methods and environment. It provides many advantages such as reduced cost, less time and flexible location. In a service based industry, especially the Hospitality Industry, the design and implementation of e-learning is very challenging. The service industry has more vague and qualitative issues to be considered. Thus an effective e-learning system for a hospitality based organization is complex. This research has been is conducted in one of the premier hotels in Chennai, Tamil Nadu India This organization wants to ascertain whether e-learning could be used as an alternative method for traditional training methods, as well as to identify the ways by which the impact of e-learning on employee's performance could be enhanced. As this organization is investing a large amount of money, time and efforts on training, it wants to identify a most effective training method and implement the same to improve the competence of its employees. The objective of the current research is to analyse the effectiveness of e-learning and identify the factors that would to enhance the same. It also aims to compare the traditional training methods with the e-learning methods , to identify skill and knowledge improvement, to measure the adherence by employees to the organization's grooming standards, to analyze the feedbacks of the guest to design the training needs & to suggest action planning for the problems identified. This study is confined to the employees belonging to following designations of Managers, Executives, GSA (Guest Service Associate), GSC (Guest service coordinator),Assistant Managers, & Regional Manager.

Keywords: Training & Development, Hospitality, E-Learning, Work Place Behavior.

Introduction & Background
The tourism and hospitality industry is one of the largest segments under the services sector of the Indian economy. Tourism in India is a key growth driver and a significant source of foreign exchange earnings. The sector's direct contribution to gross domestic product (GDP) is expected to grow at 7.8 per cent per annum during the period 2013-2023.Hotels are also an extremely important component of the tourism industry. The Indian hospitality sector has been growing at a cumulative annual growth rate of 14 per cent every year, adding significant amount of foreign exchange to the economy. The role of the Indian government, which has provided policy and infrastructural support, has been instrumental in the growth and development of the industry. The training and development has become an integral part of Human Resource Management. In the recent times, the transformation in training methods and tools are high. One such advancement is e-learning. The e-learning has made significant changes in training methods and environment. It provides many advantages such as reduced cost, less time and flexible location. In a service based industry, especially Hospitality Industry, the design and implementation of e-learning is very challenging. The hospitality industry, from which hotels are a main part, is service intensive and consequently relies heavily on its human resources. For a whole hotel to operate smoothly, it needs the involvement of staff of all departments: from the departments directly dealing with guests like Front Office, Housekeeping, Food and Beverages to back-office departments such as Accounting or Engineering. How their works is managed directly impacts to the service, thus to the guest's Satisfaction (Hayes & Ninemeier,2009).

Zeying Wan, Deborah Compeau, and Nicole Haggerty (2012) focus on employees e-learning processes during online job training. A new categorization of self regulated learning strategies, that is, personal versus social learning strategies, is proposed, and measurement scales are developed. The new measures were tested using data collected from employees in a large company. Our approach provides context-relevant insights into online training providers and employees themselves. The results suggest that learners adopt different self-regulated learning strategies resulting in different e-learning outcomes. Furthermore, the use of self-regulated learning strategies is influenced by individual factors such as virtual competence and goal orientation, and job and contextual factors such as intellectual demand and cooperative norms.
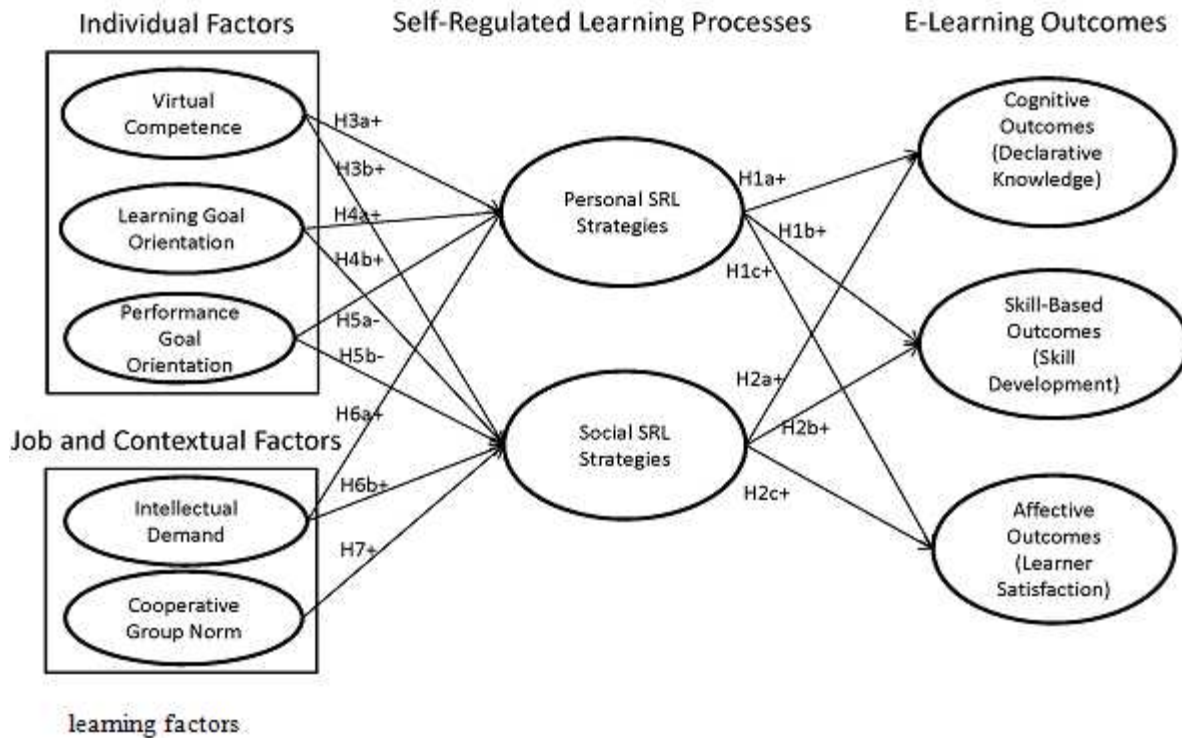
The findings can (1) help e-learners obtain better learning outcomes through their active use of varied learning strategies, (2) provide useful information for organizations that are currently using or plan to use e-learning.

Jean Adams (2010) thinks that although predicted to be a dynamic and revolutionary force for change, early e-learning results failed to live up to expectations. In a search to improve the situation, interest in blended learning strategies (e.g., classroom instruction and online learning) has been growing with the aim for finding an appropriate balance for minimizing classroom overheads and maximizing course completion and test results. This paper takes a completely different approach. Rather than cost reduction, it focuses on blending just-in-time learning opportunities with daily work practice to improve job performance and create new value (i.e., Return on Learning) for individuals and organizations. A research-based four-level blended learning model for integrating work and learning is presented, illustrating how different implementation strategies can have different impacts on job performance and work practice. The importance of creating "learning accountability loops" is introduced as a mechanism for empowering learners and organizational learning. By creating "learning accountability loops" tightly integrating work and practice, organizations can reap the benefits of continuous learning as demonstrable value is created for the organization while people are learning on the job and developing soft skills—a win-win situation for employees and organizations. Rodriguez, Brenda Cecilia Padilla (2014) conducted a study in a large Mexican organization running a virtual corporate university. It aimed to evaluate students' perceptions of three types of interaction (learner–teacher, learner–content and learner–learner) and their views on the effectiveness of online courses in terms of satisfaction, learning and behaviors. Twenty-six employees who had studied at least one online course within the organization answered an online survey. Four of them were interviewed. Results show that: (1) Learners value their interaction with the content the most. (2) Online learning is generally perceived as an effective method for delivering corporate training. (3) There is no perceived relationship between online interactions and training effectiveness. Garavan, Thomas N., Carbery, Ronan, O'Malley, Grace,O'Donnell, David (2014) says that Much remains unknown in the increasingly important field of e-learning in organizations. Drawing on a large-scale survey of employees (N = 557) who had opportunities to participate in voluntary e-learning activities; the factors influencing participation in e-learning are explored in this empirical paper. It is hypothesized that key variables derived from the theories of planned behavior and instructional design – general-person characteristics, motivation to learn, general and task-specific self-efficacy, situational barriers and enablers, and instructional design characteristics – will predict participation in e-learning. Using structural equation modeling, we find statistical support for the overall theoretical model proposed. We discuss the implications for practice. Guidy-Oulai, Anne-MarieTarn, and J. Michael (2014) state that E-Learning methods are increasingly used in organizations today for teaching, learning and training purposes. Identifying the effectiveness of e-learning methods is critical for any organization. Evaluation models and processes can be used to determine the impact of e-learning on organizations. This reviews the major existing e-learning

evaluation models and develops a checklist model for e-learning evaluation based on the findings. A two-stage validity study is conducted, including an expert panel review for model refinement and a web survey to ensure the reliability and usefulness of this instrument.

Research Methodology
The research is descriptive and analytical in nature. The sampling method used is quota sampling. Based on this method, the employees are classified into different level of hierarchies. The primary classifier used for the study is designation. The total population for the study was 254 employees covering the following categories of employees: Managers, Executives, GSA (Guest Service Associate), GSC (Guest service coordinator), and Assistant Managers & Regional Manager.

The total sample size is 128 (64 for each group) among the total population of 254 employees at the specified level. The sampling was done to facilitate both the pretest and post test. Thus, the entire population was divided into two groups as Control group: Employees undergoing traditional training – 64 & Experimental group: Employees undergoing e-learning – 64.The control group has undergone traditional training and the experimental group has undergone e-learning. The following assumptions are made to generalize the population of the study:
- The competency levels of all the employees are assumed to be equal.
- The evaluation of employees after the training is done effectively.

The study is limited by the fact that some of the data are of qualitative, the time period available for e-learning was very limited & the skill evaluation was done in a qualitative manner. The different parameters were set to evaluate the effectiveness of e-learning. Thus, to simplify the process of evaluation, the effectiveness of e-learning are measured in the following terms: Knowledge, Skill, Job Satisfaction and Workplace behavior

A separate set of parameters and tools have been developed to evaluate the above mentioned terms of effectiveness. They are:
Knowledge: DGA Interview Scores, Grooming Percentage and WOW Ratios.

Skill: Skill Matrix and Skill gap Score.

Job Satisfaction and Workplace behavior: Qualitative data from Questionnaire.

The DGA Interview is a formal interview to evaluate the knowledge acquired by the employees about the hotel, department and general domain. The HR Interviewer evaluates the employee based on a set of parameters and assigns a score out of 100.

A Grooming monitor is assigned in to every department. This person examines the grooming of the employees and submits the grooming sheet to the HR Department. It also contains action taken towards those employees who were not groomed employees.

The WOW (Appreciation) Ratios are representative percentage based on the guest's feedback based on 42 pre defined parameters.

The Skill Matrix consists of a pre-defined set of skills and knowledge required for the employees in a department. The Manager evaluates the employee over a period of time and maps the employee within three categories of A, B and C. A indicates that he is capable of training others, B indicates that he meets the standards and C indicates he needs improvement thus determining the training need for each employee.

The Questionnaire has been designed with 5 rating scales. The ranges from 1-Strongly disagree to 5- Strongly agree. The questionnaire was aimed to identify 5 factors such as Content, Duration, System, Skill and Satisfaction. The study involved both primary and secondary data. The primary data was collected through Questionnaire, Feedback form, Interview& Observation were used for analyzing employee satisfaction and service delivery. The study involved secondary data for analyzing the effectiveness of e-learning on the performance of the employees. It was collected through Company's database, Skill matrix, Grooming reports, guest feedback reports, etc. The collected data was analyzed using Correlation, Regression, Factor Analysis & One- way ANOVA.

Data Analysis and Interpretation
Reliability Analysis
The reliability test has been used to evaluate the reliability of the questions presented in the questionnaire .The reliability value of the questionnaire used in this study was tested using the reliability test. If the value of the Cronbach's alpha is greater than 7, then the reliability of the questionnaire is high.

Table 1: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.993	.994	17

As the reliability test value of the questionnaire used in this study is 0.993 which indicates a very high level of reliability of the data collected through this questionnaire.

Percentage Analysis
There were totally 128 respondents for the questionnaire. The respondents included various categories of employees from associates to regional manager with diversified demographic background. It has been observed that male employees (67.96%) are using e-learning more than female employees (32.03 %) . The data reveals that the employees of age less than 30 years using e-learning are 46%, 30-45 years are 41%, 45-60 years are 11% and employees of age greater than 60 years are 0.78%. Thus young and middle aged people prefer e-learning more than other age groups.It is observed that the employees with minimum of under graduation degree (60%) prefer e-learning and then followed by employees with post graduate degree (24%). The employees with diploma(12.5%) and school level(2.3%) qualification least prefer e-learning.The employees in the associate level mostly use e-learning at 71%, executive level at 15%, assistant manager level at 8%, manager level at3% and regional manager level at 0.78%.Employees with experience less than 5 years are 31%, 5-10 years experience is 63%, and greater than 10 years' experience are 5%. Employees with 5-10 years experience prefer e-learning.

GAP Analysis
The Gap analysis is used to measure the gap that is existing between two sets of values. It helps to identify the relationship between two different groups or set of values. It can be a positive gap, negative gap or zero .

DGA Score
The DGA Score is assigned based on the interview conducted to all the employees every month. The employees of control group had undergone traditional training and the experimental group had undergone e-learning. The DGA scores of the employees of both the group are recorded for four months and the gap between them has been analyzed to identify which method of training is would be more effective.

The gap between the DGA scores of employees are summarized in the following table.

Table 2: DGA Score

Month	Gap
Dec	3.32
Jan	1.36
Feb	4.57
March	3.08

By analyzing the overall gap, the average gap between the DGA scores for employees under control and experimental group was obtained. The average gap value is mentioned below:

Table 3: DGA Score Gap

Training Method	Average dga score increase	No of positive gap	No of negative gap
Traditional	4.429	20	15
E-Learning	9.26	7	30

It is inferred from the Table 3 that the average DGA score increase of e-learning has a very significant value of 9.26. The average DGA score increase of traditional training is only 4.43 which is less than half of the DGS score increase by e-learning. It is also observed that the number of negative increase in DGA score after traditional training is significantly high of 20 (15.62%) and a case of e-learning is as low as 7 (5.46%). The number of positive gap in DGA score after e-learning has very high significant value of 30 (23.43%). The number of positive gap in DGA score after traditional training is less i.e 15 (11.71%).Thus we conclude that e-learning has higher impact on knowledge than traditional training methods.

Skill Analysis
The employees are evaluated by the managers and the skills are identified. The skills are categorized into A, B and C.

Table 4: Skill Matrix

Category	Description
A	Exceed Standards
B	Meet Standards
C	Need Improvement

The control group had undergone traditional training and the experimental group had undergone e-learning. Their skill is measured and compared between the groups. The gap between the improvements in skill has been measured.

Table 5: Skill Gap

Training Method	Average Skill Increase
E-Learning	5.15
Traditional training	2.07

Inference: It is inferred from the Table 5 that the employees who had undergone e-learning had significant improvement in their skills by a score of 5.15 which is higher than skill matrix score 2.078 of employees who had undergone traditional training.

Grooming Percentage
The grooming monitor of each department examines the grooming of each employees of that department. The number of days the employees are groomed has been summarized. The experimental group and control group grooming percentage have also been are compared.

Table 6: Grooming Percentage

Training Method	Total Days	Groomed percentage
E-Learning	120	94.30
Traditional training	120	80.78

The employees in the experimental group had 94.30% of grooming and employees in control group had 80.78% of grooming.

Inference: It is inferred from the Table 6 that the employees in the experimental group had significant percentage (94.30%) of grooming adherence as compared to employees in control group with percentage (80.78%). Thus the e-learning had better impact on the employee behavior than traditional training methods.

Ratio Analysis
The motto of the selected Hotels is "Appreciate at every moment of truth". Thus these Hotels maintain a ratio called Appreciation Ratio, which indicate the performance of the unit based on guest feedbacks. The WOW Ratio is cumulative percentage of the feedback score given by guests. The Ratio is computed based on 42 parameters that cover all the departments.

Research Paper
Impact Factor: 3.072
Refereed, Listed & Indexed

IJBARR
E- ISSN -2347-856X
ISSN -2348-0653

Table 7: Appreciation Ratio

Dept	Dec	Jan	Feb	March	April	Gap
Unit	76	79.3	86.25	81	87.2	11.2
HR	83.5	81	82.6	79	73	-10.5
Learning services	88	79	69.5	89	95.5	7.5
F&B Production	82	73	81.33	84	84.23	2.23
F&B Service	69.5	72	80	91	83.5	14
F&B Support	71	85	83.5	82	78.5	7.5
Sales and marketing	80	76	78.5	68.5	83.4	3.4
Finance	73	91.2	85	73.4	81	8
Loss prevention	84.3	74	73	83.5	88.5	4.2
Spa	91	85	84	75	83.25	-7.75
Engineering	71	61	79.5	81.5	80	9
IT	78.5	73	70	81.5	79	0.5
Room service	66	88.5	81	70.25	68.5	2.5
Wow express	91.5	74	86.5	81	94.5	3
Housekeeping	88.5	62	72.5	86	90	1.5
Front office	70	71	83.5	84	73.5	3.5
Fabricare	63.23	80	84	86.25	81.9	18.67
Average gap						4.61

The average Ratio of all the departments for the 4 months is computed. The gap between the Ratio of the December and April month has been identified.

Inference: It is inferred from the Table 7 that the average Appreciation Ratio increase of the unit and the departments is 4.61%, which is significantly higher . Thus we infer that e-learning has significant impact on overall performance of the organization.

Regression Analysis

Table 8: Regression

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.994[a]	.987	.987	.098

Regression equation:
Overalllearningscore=0.192content+0.399duration+0.257system+0.032knowledge+0.023behavior.

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Impact Factor: 3.072
Refereed, Listed & Indexed

IJBARR
E- ISSN -2347-856X
ISSN -2348-0653

Table 9: Regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	**Std. Error**	**Beta**		
1	(Constant)	.516	.061		8.457	.000
	Overall Content Score	.192	.038	.195	5.001	.000
	Overall Duration Score	.399	.060	.434	6.694	.000
	Overall System Score	.257	.047	.323	5.433	.000
	Overall Knowledge Score	.032	.018	.032	1.765	.080
	Overall Behavior Score	.023	.024	.026	.948	.345
a. Dependent Variable: Overall E learning Score						

Inference: It is inferred from the Table 9 that the relationships among the variables such as content, duration, system, behavior are high. The overall e-learning effectiveness is affected by these factors with high significance.

Correlation Analysis: The associations among the various factors are identified using correlation analysis. The following table shows significance values of each factor's correlation.

Table 10: Correlations Content

Model		Overall Content Score	Overall E learning Score
Overall COntent Score	Pearson Correlation	1	.970[**]
	Sig. (2-tailed)		.000
	N	128	128
Overall Elearning Score	Pearson Correlation	.970[**]	1
	Sig. (2-tailed)	.000	
	N	128	128
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 11: Correlation Duration

Model		Overall Elearning Score	Overall Duration Score
Overall Elearning Score	Pearson Correlation	1	.989[**]
	Sig. (2-tailed)		.000
	N	128	128
Overall Duration Score	Pearson Correlation	.989[**]	1
	Sig. (2-tailed)	.000	
	N	128	128
**. Correlation is significant at the 0.01 level (2-tailed).			

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Impact Factor: 3.072
Refereed, Listed & Indexed

IJBARR
E- ISSN -2347-856X
ISSN -2348-0653

Table 12: Correlation System

Model		Overall Elearning Score	Overall System Score
Overall Elearning Score	Pearson Correlation	1	.986[**]
	Sig. (2-tailed)		.000
	N	128	128
Overall System Score	Pearson Correlation	.986[**]	1
	Sig. (2-tailed)	.000	
	N	128	128

Table 13: Correlations Knowledge

Model		Overall Elearning Score	Overall Knowledge Score
Overall Elearning Score	Pearson Correlation	1	.838[**]
	Sig. (2-tailed)		.000
	N	128	128
Overall Knowledge Score	Pearson Correlation	.838[**]	1
	Sig. (2-tailed)	.000	
	N	128	128

Inference: It is inferred from the Table 13 that the correlation between system and e-learning is higher than correlation between knowledge and e-learning.

Table 14: Correlations Behavior

Model		Overall Elearning Score	Overall Behavior Score
Overall Elearning Score	Pearson Correlation	1	.921[**]
	Sig. (2-tailed)		.000
	N	128	128
Overall Behavior Score	Pearson Correlation	.921[**]	1
	Sig. (2-tailed)	.000	
	N	128	128
**. Correlation is significant at the 0.01 level (2-tailed).			

Inference: It is inferred from the Table 14 that the factors such as duration and system have high association over the e-learning score compared to other factors.

Chi – Square Test
It is used to measure goodness of fit between the values of the variables. The following show results of two variables.

Table 15: Age

Count						
Model		**Overall Elearning Score**				**Total**
		2	**3**	**4**	**5**	
Age	Young	3	1	1	54	59
	Middle	6	0	1	46	53
	Elder	2	0	0	13	15
	Old	0	0	0	1	1
Total		11	1	2	114	128

Table 16: Chi-Square Test

Model	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.338[a]	9	.949
Likelihood Ratio	4.098	9	.905
Linear-by-Linear Association	.791	1	.374
N of Valid Cases	128		
12 cells (75.0%) have expected count less than 5. The minimum expected count is .01.			

Table 17: Hypothesis

Model		Value	Approx. Sig.
Nominal by Nominal	Phi	.161	.949
	Cramer's V	.093	.949
N of Valid Cases		128	
a. Not assuming the null hypothesis.			

Inference: It is inferred from the Table 16 that the goodness of fit between the age and e-learning score has higher value of 0.949

Table 18: Designation

Count			
Model		**Overall Elearning Score**	
		2	**3**
Designation	Associate	7	1
	Executive	2	0
	Asstmgr	2	0
	Manager	0	0
	Regmrg	0	0
Total		11	1

Table 19: Chi square test

Model	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.226[a]	12	.979
Likelihood Ratio	4.343	12	.976
Linear-by-Linear Association	.075	1	.784
N of Valid Cases	128		
a. 16 cells (80.0%) have expected count less than 5. The minimum expected count is .01.			

Research Paper   *IJBARR*
Impact Factor: 3.072   *E- ISSN -2347-856X*
Refereed, Listed & Indexed   *ISSN -2348-0653*

Table 20: Hypothesis

Model		Value	Approx. Sig.
Nominal by Nominal	Phi	.182	.979
	Cramer's V	.105	.979
N of Valid Cases		128	

Inference: It is inferred from the Table 19 that the goodness of fit between the designation and e-learning score has higher value of 0.979.

Table 20: Gender

Model			Overall Elearning Score				Total
			2	3	4	5	
GENDER	M	Count	7	1	2	77	87
		% within Gender	8.0%	1.1%	2.3%	88.5%	100.0%
		% within Overall Elearning Score	63.6%	100.0%	100.0%	67.5%	68.0%
		% of Total	5.5%	.8%	1.6%	60.2%	68.0%
	F	Count	4	0	0	37	41
		% within Gender	9.8%	0.0%	0.0%	90.2%	100.0%
		% within Overall Elearning Score	36.4%	0.0%	0.0%	32.5%	32.0%
		% of Total	3.1%	0.0%	0.0%	28.9%	32.0%
Total		Count	11	1	2	114	128
		% within Gender	8.6%	.8%	1.6%	89.1%	100.0%
		% within Overall Elearning Score	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	8.6%	.8%	1.6%	89.1%	100.0%

Table 21: Designation

Overall Elearning Score								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
High school	3	5.00	0.000	0.000	5.00	5.00	5	5
Diploma	16	4.63	1.025	.256	4.08	5.17	2	5
Degree	78	4.72	.836	.095	4.53	4.91	2	5
Post graduation	31	4.71	.902	.162	4.38	5.04	2	5
Total	128	4.71	.862	.076	4.56	4.86	2	5

Inference: It is inferred from the Table 21 that the association among the demographics such age, gender, qualification, experience and the overall e-learning effectiveness is very less.

ANNOVA
The ANOVA test is the initial step in identifying factors that are influencing a given data set. After the ANOVA test is performed, the analyst is able to perform further analysis on the systematic factors that are statistically contributing to the data set's variability.

Research Paper
Impact Factor: 3.072
Refereed, Listed & Indexed

IJBARR
E- ISSN -2347-856X
ISSN -2348-0653

Table 22: ANOVA

Overall E learning Score					
	Sum of Squares	**Df**	**Mean Square**	**F**	**Sig.**
Between Groups	.957	3	.319	.424	.736
Within Groups	93.348	124	.753		
Total	94.305	127			

Inference: It is inferred from the Table 22 that the relationship among the various factors of e-learning such age, gender, etc are very less.

Conclusion

The Research focuses on analyzing the effectiveness of e-learning. In order to enhance the effectiveness of e-learning, various parameters like knowledge, skill, work place behavior, and performance of the employees were measured. The values of different parameters were compared with the values obtained by traditional methods. The major two factors that enhance the effectiveness of E learning have been identified as the duration of the e-learning and the system resources provided for e-learning. If the organization enhances these two factors, the e-learning's impact can be increased. Based on the findings, it was concluded that e-learning method is more effective than traditional training methods. The future studies can be conducted which may focus on identifying the effective units and criteria to enhance the effectiveness of e-learning and to develop a customized e-learning system for the employees.

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