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## **LEARNING IMPACT, LEARNING MODE AND ELEARNING - AN INDIAN SCENARIO**

**Abstract:** *In this paper, attempts have been made to find out if learning impacts are different in different modes of learning in Indian scenario. An effort is taken to find out learning patterns and motivation of learning in different learning modes.*

**Keywords:** *e-learning, learning impact, learning adherence, Learning Management System (LMS)*

### **1. INTRODUCTION**

E-learning has a major role to play in making education more affordable, accessible and effective. It enables learners in any part of the world to benefit from the latest and most prestigious courses.

There exists an age old controversy regarding the impact (effectiveness) of eLearning compared to the effectiveness of class room learning. Some of the specialists are of opinion that if learning happens via class room it creates more impact on the learners [1]. Due to more interaction between teachers and the students, learning becomes more effective. On the other hand, some specialists are of opinion that in the cyber age, people are becoming more and more dependent on computer and internet which are the key success factors for the effective elearning [2].

Section 2 contains the results of an experiment comparing the learning impact in class room as well as via elearning i.e. in two different modes of learning in an Indian scenario.

Section 3 contains the results of training attendance, meeting target date of completing a course in two different modes of learning in Indian scenario. This experiment was done to check the learning adherence (critical factor for learning) of the learners.

Section 4 offers concluding remarks and outlines the scope for future work.

### **2. LEARNING MODE AND LEARNING IMPACT**

#### **2.1 Experimental hypothesis**

The main objective of this experiment is to test whether class room teaching and elearning have same learning impact or not.

Null hypothesis: Understanding in case of class room teaching = Understanding by elearning

Mathematical expression,  $H_0: d$  (score in after elearning - score after class room teaching) = 0

Alternate hypothesis: Understanding in case of class room teaching >

Understanding by elearning Mathematical expression:  $H_1: d$  (score after elearning - score after class room teaching)  $< 0$

### 2.2 Sample details

The sample comprises of a heterogeneous group of 896 elearning users with more than one year of elearning experience.

### 2.3 Procedure for evaluation

The learners were asked to take a course on Time Management using English as the medium of instruction. The learners were given 120 minutes to go through the contents and answer 25 questions based on them.

The same learners were then offered

the same course in the class room mode. The same assessment questions were repeated but with a different sequence of questions and options, to eliminate the error due to bias.

Learner performances were downloaded from LMS or Learning Content Management System [3-5] and comparison is made with the performance after class room training.

Data sets regarding the average time spent to complete the course and the assessment were available from the LMS. This information was used for analysis.

### 2.4 Results and conclusions

The data is summarized in the Table 1 and Table 2.

**Table 1. Test performance**

Mode	No. of Students	Passing Score	Average score in the assessment (%)	Range (%)
elearning	896	50	62.34	48- 72
Class room	896	50	64.82	51- 82

**Table 2. Time used**

Language	No. of Students	Average time spent (minutes)	Range (minutes)
elearning	896	102	95-110
Class room	896	108	100-115

The performances of the same employee in the same course, with different modes of learning, were tracked. Wilcoxon test (non-parametric paired t-test) was performed to validate the above hypothesis. It was found that for 896 learners, Wilcoxon Statistics was 39161.0 ( $p$ -value=0.12).

On the basis of the information presented in the tables above and the test output, it can be concluded that:

- The difference between average score of employees in different modes of learning is not significant at 5% level of significance;
- There is no as such significant variation in the ranges of the scores of employees in two different modes of learning;
- Performances of the employees are not significantly different in the two modes of learning ( $p$  value  $> 0.05$ ).

### 3. THE TREND OF LEARNING ADHERENCE

#### 3.1 Sample details

The sample comprised a heterogeneous group of 1500 elearning users (comprises of students and service personnel) with more than one year of elearning experience.

#### 3.2 Procedure for evaluation

The users were asked to take a course on Time Management using English as the medium of instruction. The users were given 30 days time to complete the course along with the assessment. The condition for completion was to visit all the pages with visiting all the popup(s) available. Scoring over the pass mark was not the mandatory criteria. The data regarding the completion of the course were collected from the respective LMS.

The same users were then offered the same course but with different versions i.e. Part-II in the class room mode. The training was divided into 10 different sessions and parameters like percentage of attendance; no. of learners coming late was found out [5].

The summary is made based on the following conditions;

- Percentages of the absent learners in both the modes of learning;
- Percentage of learners absent in one mode of learning;
- Percentages of learners present in both mode of learning;
- Percentage of learners present in one mode of learning

#### 3.3 Results and conclusions

##### Case -1:

Out of 1500 invitation, all of them agreed to take the eLearning and also to go for class room training [6, 7].

This can be summarized in Table 4 to 7.

**Table 3. Summary of test taken**

	Training	
	elearning	Class room
<b>Course Taken</b>	1226	1086
<b>Course Not Taken</b>	274	414

Then further analysis was done to find-out how many users taken both form of training, not taken both modes of training and one form of training, this summary is represented in Table 5.

**Table 5. Summary of user status of the course**

		Learning mode - Elearning	
		C	NC
Class room	C	896	190
	NC	330	84

**C: Completed; NC: Not completed**

**Table 6. Summary of user status – elearning**

Learning mode- elearning	Student	Service Personnel
<b>Course Taken</b>	592	634
<b>Course Not Taken</b>	158	116

**Table 7. Summary of user status – Class Room**

Learning mode - Class room	Student	Service Personnel
<b>Course Taken</b>	556	530
<b>Course Not Taken</b>	194	220

**Table 8. Student Vs. Mode of learning**

Learner-Service Personnel	Class Room	E-learning
Course Taken	556	592
Course Not Taken	194	158

**Table 9. Service Personnel Vs. Mode of learning**

Learner-Service Personnel	Class Room	E-learning
Course Taken	530	634
Course Not Taken	220	116

The related hypothesis for testing of the data is as follows:

H<sub>0</sub>: Course attendance in both the modes is same vs.

H<sub>1</sub>: Attendances are different

Chi square ( $\chi^2$ ) test for homogeneity was conducted at 5% level of significance.

In case of elearning and class room training, we get computed  $\chi^2$  as 36.966 with degrees of freedom (df)=1 and p-value as 0. This implies that there is significant difference in the attendances of both the modes and absent percentage in class room mode (27%) are much higher than that of absent percentage in elearning mode (18%).

**Case-2:**

Here attempt was made to compare the attendance of students and employed learners in two different modes [7,8]. The corresponding hypotheses was:

H<sub>0</sub>: Course attendance was same for students and employed learners vs.

H<sub>1</sub>: Attendances are different

With same level of significance as earlier, we find  $\chi^2 = 8.554$  with df = 1 and

p-value = 0.003. Hence, we may say that there is significant difference among the attendances among two different groups of learners and absent percentage of students (21%) is much higher than that of absent percentage in working professional (18%).

In case of class room mode, we get  $\chi^2 = 2.255$  with df = 1 and p-value = 0.133. This means that there is no significant difference among the attendances among two different groups of learners in class room mode.

**Case-3:**

In this case, attempt was made to compare the attendance learners in two different modes within learners. The hypotheses were as under:

H<sub>0</sub>: Course attendance was same for student/employed learners in both the modes

H<sub>1</sub>: Attendances are different in the modes

In case of student, we get  $\chi^2 = 4.81$  with df = 1 and p-value = 0.028. Hence, there is significant difference in the attendances of students in two different modes of learning and absent percentage in class room (26%) is much higher than that of absent percentage in case of elearning (21%).

In case of employed professionals,  $\chi^2 = 41.483$  with df = 1 and p-value = 0.0. So, there is significant difference in the attendances of employed professionals in two different modes of learning and absent percentage in class room (29%) is much higher than that of absent percentage in case of elearning (15%).

Thus, after summarizing all the above test results, we can conclude that:

- 60% of the invitee attended both mode of learning;
- 5% of the invitee not attended any mode of learning;
- 22% of the invitee attended elearning but not class room mode;

- 13% of the invitee attended class room mode but not elearning;
- Overall attendance in elearning is greater compared to that of class room.

After taking the feedback of learners, the causes of absenteeism in both the modes of learning are summarized as follows.

#### 1) Class room learning:

- It is not convenient
- The effectiveness of learning depends on the teacher or instructor's competency
- Timing clash with busy work schedule
- It is difficult to understand the concepts in a class

#### 2) eLearning

- It is good but for technically challenged person it is quite difficult
- Poor network bandwidth makes learning difficult
- eLearning with faculty (blended learning) may be an option

### 4. CONCLUDING REMARKS AND FUTURE SCOPE OF WORK

The primary objectives of this research are twofold:

- to find out whether impact of learning is same or different in class room and elearning mode
- if the learning adherence of the learners are same or different modes of learning

We have also observed from the experiment that in Indian scenario, based on the available samples, there is no significant difference in learning impact in different modes of the learning. The learning adherence patterns are not same in two different mode of learning.

#### *Points for thought*

- While most of the learning happens in class room mode but there is no significant difference in learning impact in two different modes.
- The learning adherence is not similar in two different modes of learning. In case of elearning adherence to learning is higher compared to class room learning
- Though costly investment, considering the current Indian scenario elearning may be a strong alternative to class room mode of learning.

Future research could cover, for example, checking of learning adherence in different sectors of business and education to have a clearer pattern.

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