

Traditional Learning versus Web Based Learning: Performance Analysis

Kavita Saini¹

*IEC-College of Engineering and
Technology
Greater Noida, India*

Dr. Abdul Wahid²

*Head of Department of CS & IT
MANUU, Central University,
Hyderabad, India*

Dr. G N Purohit³

*Dean, Department of AIMACT
Banasthali University, Rajasthan,
India*

Abstract The increase use of the Internet and Web-Based Instruction system in training and education has given direction to many researchers to evaluate its effectiveness on learner's outcome. The effectiveness includes the increased knowledge level, performance, satisfaction and remembrance of the topics learnt.

The study summarized in this research paper is undertaken to evaluate the the knowledge level of algorithm understanding of graduate and under graduate students with Web based Instructional system (WBIs). For the purpose of evaluate the effectiveness of WBIs statistical t-test is used to compare the outcome of two learner groups. Group G1 and G2 learners through WBIs tool named AlogWBIs and traditional learning respectively.

Keywords: Web-Based Instructional (WBIs), interactive learning, web enabled learning.

INTRODUCTION

Learning is an act of acquiring knowledge. Learners may acquire new knowledge or modify existing knowledge. There are many way of learning which includes traditional (face-to-face) learning, distance learning or web-based learning.

Frequent use of the Internet is now part of our education system. Many people have recognized the importance of evaluating its effects on student outcomes such as learning, performance, and satisfaction. Web based courses are more popular and useful for higher education. Web-based courses allow having more control on students.

On the other side the learner population has changed over the years so it is difficult as well as costly to handle this large number of learners by the universities. Web based learning provided a cost effective way to provide learning to the learners. Learning occurs through social interactions and processes among the students and teachers.

TRADITIONAL LEARNING

Traditional learning gives the instructor a chance to create interest in a subject and clarify the confusion immediately. Teacher can understand student's psychology during learning. Instructor can deal with questions, unanticipated student ideas and comments. Teachers can give complements to the students when they perform well. Text material and be provided and discussed then and there. Allow the teacher to influence students when they are actively working with the material.

In traditional learning students places a passive role rather than an active one. Mostly one way communication is possible as all students listen to the teacher. Teachers are required to have effective writing and speaking skills.

Teachers are mostly required to solve student's problems in a limited time frame.

In traditional learning, distance learning is the most prominent way of learning. It always reduces the effort of providing learning ignoring the geographically distant. The relevant literature shows that various authors and researchers use inconsistent definitions of distance education and distance learning.

In distance learning education and instructions are delivered to on an individual basis. Unlike traditional learning students need not to be physically present in classroom. Students who are far away and cannot reach to the institutes or colleges can access the learning material to gain knowledge.

WEB-BASED LEARNING

As the Internet became a source of delivery of education and is a more significant use of the Internet is done in the field of education. Earlier many learners are being left behind by an educational system due to many reasons. These reasons may be the unavailability of colleges nearby, cost to reach to the colleges or time limitation. Learners now use electronic gadgets such as tablets, Laptops, smart phones etc. these gadgets are being utilized for providing learning to them.

Web based learning is affordable and effective way of learning. With the effective learning techniques Students' Learning can be improved. The Internet is playing a vital role in providing learning in effective way, Dunlosky, John, et al.[2013]. The Internet has also promoted self regulated learning and as a result helps learners in self control, self instruction and self regulation, Zimmerman, B. J. [1989].

ADVANTAGES AND DISADVANTAGES

Web-Based Learning (WBL) in higher education is that it overcomes barriers of time, distance and time. It provides to individualize learning and involve learners during learning process. Besides personalized instructional system it involves adaptive instruction. Adaptive instruction is one in which the system uses information about the learner to alter and help in optimizing the learning process. The potentially of WBIs tools facilitates educators is utilizing multimedia, audio, video, conferencing and chat room in delivering learning material. It always facilitates effective learning.

Major disadvantage of computer enabled learning includes social isolation. Another problem is the cost of development of WBIs tool, which may be higher than the cost of traditional learning. Not just the development cost there may occur some technical problems which will demotivate learners.

ROLE OF STATISTICAL ANALYSIS

Statistics is the study of the collection, organization, analysis, interpretation and presentation of data. Statistical analysis basically refers to a collection of data, study and presenting reports. Every single data sample in a population is examined in Statistical analysis. Where population is a set of elements and sample is a subset of elements taken from a population, Rossiter [2006]. The objective of data analysis may be summarization or grouping of data for the purpose to understand some process and possible predict. It provides a way to describe, explore, understand, prove and predict data Rossiter [2006].

COMPARATIVE ANALYSIS OF TRADITIONAL LEARNING AND WEB BASED LEARNING

Besides various difficulties WBIs is more prominent way of learning specially in higher education. The comparative analysis of traditional and web based learning shows that WBIs are very much helpful in improving learner's outcome. WBIs increase the outcome of learners in comparison to traditional learning. The outcome includes the learning, satisfaction, and performance. The paper presents the comparative analysis of two learning groups G1 and G2. Where group G1 learned through WBIs tool and group G2 learned with traditional method. The overall methodology is presented in the next section.

The main objective to carry out this analysis is to examine the student's performance that learnt through different learning methods. The assumption of the study is that there is no significance difference between the traditional learning and web based learning. Null hypothesis of the study is that there is no significance difference between traditional learning and learning through WBIs. Alternative hypothesis of the study is that there is significance difference between traditional learning and learning through WBIs. This can be expressed as:

For this analysis group G1 learnt algorithm through web based learning tool. There were 48 learners in G1. Whereas group G2 learnt algorithm with traditional learning method. There were 47 learners in G2. After learning both groups appeared for a test. The purpose to conduct the exam was to check the performance of both groups. The mean score of G1 was 19.23 and G2 was 14.23. It is clear from the mean score of these groups that the learners who learnt through the WBIs tool scored better marks in comparison to those who learnt through traditional method.

The test paper was comprises of twenty five multiple choice questions in which each question carried four options. Learners need to select one correct answer. There experimental method was used for the analysis. Experimental research is important to learners and instructors to improve the way of using and delivering the learning material.

The sample for this analysis was selected randomly from the professional graduate and under graduate courses. During the analysis it is assumed that Subjects of the study were normally distributed. All the participants answered the questions sincerely and accurately. The results of test were used to the measure of assess student's knowledge

acquisition and all the participants were willing to attain the objectives of the study.

STATISTICAL T-TEST

To compare the mean values of two independent group's statistical t-test is performed, which is done with the help of SPSS. The t-test for the difference in means is an hypothesis test that tests the null hypothesis that the means for both groups are equal, versus the alternative hypothesis that the means are not equal (2-tail) or that the mean for one of the groups is larger than the mean for the other group (1-tail).

The independent t-tests are used to compare data collected from G1 and G2 groups. As mentioned above the mean score of G1 is 19.23 and G2 is 14.23. t-test in this analysis is used to compare the differences in score achieved by both groups. On average, group G1 has higher score in ($M = 19.23$, $SD = 2.88$, $N=48$) than group G2 ($M = 14.23$, $SD = 2.56$, $N=47$). This difference was statistically significant, $t(93) = 8.91$, $p=.000$, two tailed), indicating that the higher average score of learners using WBIs was more than learners who had not used WBIs.

The result of t-test shows that there is considerable variation between students' result of both groups. WBIs learner group one (web based learning) scored better marks than the learner group two (traditional learning).

FINDINGS

The finding of the analysis is that the Web-Based Instructional system is more beneficial and effective than the face-to-face traditional learning. Algorithm skills of both have improved but G1 shown better result than the G2. It makes it very clear that the adoption of WBIs is fruitful for students. That is why it results as the reject the null hypothesis.

STRENGTHS

The tool for Web based instructional system is more effective than the traditional learning. Another strength is that WBIs can be used from basic classes to higher education, computer science and non-computer science courses and diploma to degree courses. Further is it can be used as a teaching aid in traditional learning or as an independent learning tool. WBIs tools are helpful in removing the cultural, time and geographical barriers for students and teachers.

LIMITATIONS

There may be some technical problem during learning through WBIs tools. The Internet connection sometimes may not be available when students are willing to learn. Self-directed and self-disciplined learning is always not successful as students may be distracted or unfocused by nature. The analysis is done only with 48 and 47 students in each group for algorithm course only.

CONCLUSION

At the end we can say that learning through web based tool is better than the learning through traditional learning. It will help student, teacher and institutions in improving overall learning process.

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