



ISSN: 2230-9926

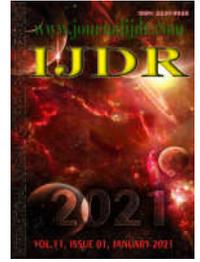
Available online at <http://www.journalijdr.com>

IJDR

International Journal of Development Research

Vol. 11, Issue, 01, pp. 43590-43593, January, 2021

<https://doi.org/10.37118/ijdr.20603.01.2021>



RESEARCH ARTICLE

OPEN ACCESS

STATISTICAL ANALYSIS OF E-LEARNING

***Esmita Gupta and Ayush Gupta**

Birla College Road, Near RTO, Kalyan, India

ARTICLE INFO

Article History:

Received 19th October, 2020
Received in revised form
06th November, 2020
Accepted 11th December, 2020
Published online 30th January, 2021

Key Words:

e-learning; Sentiment analysis; Statistical analysis; Traditional Learning.

**Corresponding author: Esmita Gupta,*

ABSTRACT

Education plays the most important role in the pace of the social, political and economic development of any nation, so effective teaching is very essential. Effective teaching does not mean being perfect or giving a wonderful performance but bringing out the best in students. The traditional methodology of teaching focused on teacher directing students to learn through memorization and recitation techniques thereby not developing their critical thinking problem solving and decision-making skills, whereas the e-learning system refers to teaching efforts spread using computers to impart knowledge. It is a network-enabled transfer of skills and knowledge, where the delivery of education is made to many recipients at the same or different times. Though e-learning is made into practice and being adapted at many education systems but are the students ready to accept it? Is it really benefitting them or since it is imposed, they must accept.

Copyright © 2021, Esmita Gupta and Ayush Gupta. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: *Esmita Gupta and Ayush Gupta, 2021. "Statistical analysis of e-learning", International Journal of Development Research, 11, (01), 43590-43593.*

INTRODUCTION

As technology has ingrained its way in our daily existence, education has been changed. Long gone are the days of thumbing through an Encyclopedia. Learning is now boundless with everything available at the tip of our fingers. However, technology has profoundly changed education in many various ways. One way in which technology has greatly influenced or extended is the access to education. In primitive times, books were rare so only few had access to educational opportunities. Individuals had to visit centres of learning to urge an education. In today's scenario massive amounts of data in all forms i.e., audio, video, text, etc. are available at a single click through the web, and prospects for formal learning are accessible worldwide in online mode through the MOOCs, podcasts, traditional online degree programs, and many more. Access to learning prospects at the moment is exceptional in extent because of technology. Technology has also begun to vary the roles of teachers and learners. Within the traditional classroom, like what we see depicted in de Voltolina's illustration, the teacher was the primary source of data, and therefore the learners passively received it. This model of the teacher or instructor was as a "sage on the stage" in traditional form of education for a long period of time, and it's still considerably notable today also.

However, due to the availability of the information and academic opportunity that technology has enabled, the teacher's role is shifting to as 'guide on the side'. Students are taking more responsibility for his or her own learning using technology to collect relevant information. On one hand, this information will help in the effective development of e-learning systems, so that these systems can adapt any of their aspects i.e., assignments to be offered to the student or any other person interested to learn through an e-Learning platform, contents, and so on according to each student sentiment, among other criteria. On the other hand, the divergence of the emotions transmitted by the students will constitute useful feedback for the course teacher. It will also help us to know the acceptance of e-contents in various areas. This experimental result will be gathered from different areas, different background students and students from various disciplines. Which in turn will help the teachers to develop their e-content accordingly?

Students' primarily observed satisfaction with technology-based e-Learning will determine whether they will use the system continually.

This paper is structured into three different sections. Section 2 depicts pursued approach. Section 3 is devoted to the presentation and analysis of our experimental results. Finally,

our recommendations for future research opportunities along with the conclusion are reported in section 4.

Research Approach

In this COVID19 pandemic situation, where everything is going in online mode, we thought of doing a survey to statistically analyze the data both quantitatively and qualitatively in terms of student-teacher relationship, their e-learning platform acceptance and the satisfaction ratio with respect to traditional learning.

Research Questions

For the purpose of this study, we have considered four main sections apart from the personal information of learning community.

1. Basic course Requirement
2. Instructor Presence
3. Knowledge e-Common features
4. Traditional v/s e-Learning Platform

In order to carry out the survey, we created a google form and framed research based questionnaire to collect the sample data from the rural, urban and semi-urban area. The sample of population was consisting of people from different teen to adults age group. The objective behind this study is aimed at measuring student satisfaction with e-learning environment. The questionnaire was divided into 4 modules, other than basic information of the respondents with each module comprising of questions related to factors that impact satisfaction or dissatisfaction, acceptance or any other views on e-learning.

The first module of the research paper contains the basic course requirement questions in order to understand the pattern of enrollment of the respondent. The second module comprised of questions related to the satisfaction levels of instructor presence to solve the doubts and understanding of the concepts. The third module was related to the knowledge gain from the e-learning courses and the assessment. The fourth module was to analyse the satisfaction of the respondents was more for traditional learning or e-learning.

Based on the research objective of the study following research questions were formulated to achieve the objective:

1. Basic course Requirement
2. Instructor Presence
3. Knowledge e-Common features
4. Traditional v/s e-Learning Platform

METHODOLOGY

E-Learning involves the deliverance of information by using telecommunication technology in order to educate and train. In today’s education system, e-learning has become an emerging paradigm owing to the enormous advancement in communication and information technology. Features of e-learning encompass all the requirements of learning in modern age and e-learning has got a greater demand among businesses and higher education institutes owing to this particular quality. In order to study the satisfaction of the samples on the e-Learning platform, a survey was carried out on various

parameters as described above, in addition to it the survey on traditional education v/s e-learning education was also carried out for understanding the requirement with respect to the e-learning platform.

The sample was collected from urban, suburban, and rural area with diversities in age, gender, level, and domain of study. A pre-designed questionnaire was used in the study. All the information was distributed across four important key points as discussed above [2.1]. Likert Scale and the sentiments of the respondents was used to analyse the survey responses. The level of acceptance and rejection was mapped as the results of the research.

Accordingly, few hypotheses were considered to define the relationship between the parameters and the outcome was defined. The results were statistically calculated using SPSS software application. Sentiments of liking and disliking of e-learning were studied and analyzed.

RESULTS

As per the four modules considered, hypotheses were designed and analysed. The hypotheses were to assess the perceptions and attitudes of potential learners about e-learning education. The first hypotheses was defined to find the difference between number of courses opted and number of courses actually completed by the learner. Chi- Square test was carried out to test the hypotheses which will help us to find whether the learner is focussed and is able to complete the course.

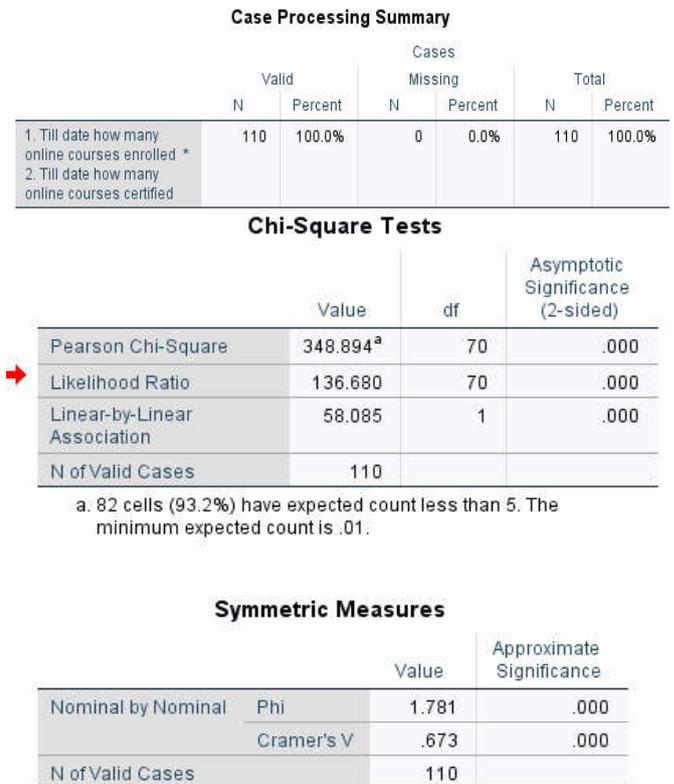


Fig. 1.H1. There exists the difference between number of courses opted and no. of courses completed by the learner [17]

As P value is 0.000 which is less than 0.05, it indicates that there is significant difference between number of courses opted and completed, thus we accepted the hypotheses H1. The

second hypotheses were to test whether the learners have positive sentiments for E- Learning. Chi- Square value is 3.64 at D.F 4 and P value 0.4569 as P value is greater than 0.05 thus, we reject H2: Learners have positive sentiments for E-Learning. Hence, we accept null hypothesis Ho: Learners have negative sentiments with E-Learning. So the efforts must be done to transform the negative sentiments to positive sentiments as E-Learning is the need of the hour.

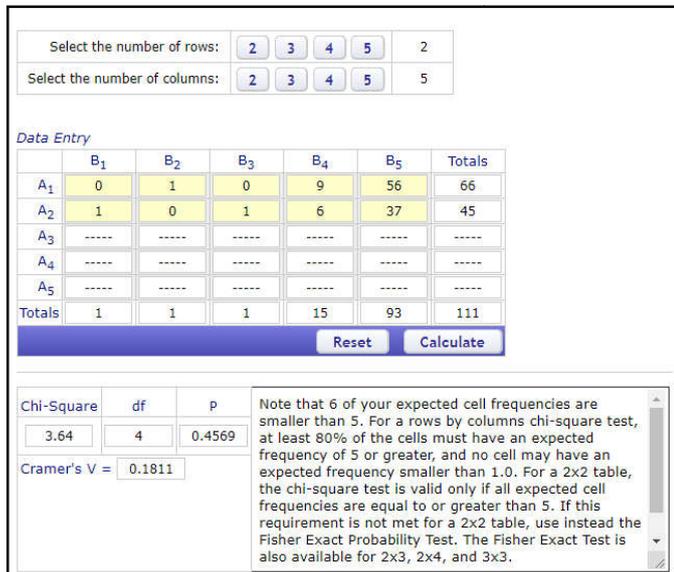


Fig.2. H2:The learners have positive sentiments for E- Learning [16]

Chi- Square value is 3.64 at D.F 4 and P value 0.4569 as P value is greater than 0.05 thus, we reject H2: Learners have positive sentiments for E- Learning. Hence, we accept null hypothesis Ho: Learners have negative sentiments with E-Learning. So the efforts must be done to transform the negative sentiments to positive sentiments as E-Learning is the need of the hour.

The next hypothesis H3 was defined to check whether the learner’s engagement with E- Learning course has significant relationship with E- Learning course content, features, format, navigation and features.

Table 1. Learner’s Engagement [17]

Sr. No.	Variable	Upper Bound	Lower Bound
1	Course	1.00	1.00
2	Course Content	0.735	0.507
3	Format of Course	0.696	0.453
4	Navigation through course	0.647	0.375
5	Features of course	0.648	0.377

Here engagement is wrt the studies in terms of Course, Course Content, format of course, Navigation through course and features of course. Since all the variables are having positive correlation value, we accept that H4: Learners engagement with E- Learning course has significant relationship with E-Learning course content, features, format, navigation and features.

Symmetric Measures

	Value	Approximate Significance
Nominal by Phi	.053	.578
Nominal by Cramer's V	.053	.578
N of Valid Cases	110	

Fig. 3.H4:E- Learning vs T-Learning [17]

The next hypothesis H4 was based on the satisfaction of learners whether they are more satisfied towards E- Learning compared to T- Learning vis - a- vis gender.

Phi and Cramer’s V has P value 0.578 which is greater than 0.05 which further support that respondents are more comfortable with T- Learning as compare to E- Learning. Thus, we accept null hypothesis and reject alternate hypothesis.

Conclusion and Future Plan: This survey study has let us know how to move towards the implementation of a new high-level way of building scientific analytics and data-intensive discovery tasks. Statistical and Sentiment Analysis has helped to augment the teaching systems. This Analysis has brought a significant idea for the creation of e-content, by providing the teaching faculties with the way of Implementation, the quest for agility, Creation of Ubiquitous e – contents and a step towards digitization in Positive fronts. This will not only benefit the future generation but also lead us one step ahead on the path of User Centric digitization. The research findings can also be compared with other states to determine the value of e-learning and their acceptance. This would help in obtaining the emphasis on various factors such as technology, the course structures and availabilities, etc. It will have a direct relationship between lecturers’ attitudes, and the student experience of using e-learning. The end-point outcomes will be achievement, retention and quality of teaching will be enhanced. The key area for development will thus help in taking major care on the type of users using e- resources. We can take forward the research on major aspect for comparing the delivery of higher education and its acceptance in India and other countries.

REFERENCES

Agarwal, E. S. (2013). ‘E-learning: New trend in Education and Training’, International Journal of Advanced Research (2013), Volume 1, Issue 8, 797-810 . al, K. W. (2014)

Aysha Ashraf, Muhammad Gufran Khan, ‘Effectiveness of Data Mining Approaches to E-Learning System: A Survey’, Volume 04, December 2016.

Bifet, Albert, and Eibe Frank, ‘Sentiment knowledge discovery in twitter streaming data.’, Discovery Science. Springer Berlin/Heidelberg, 2010.

Dan Song, Hongfei Lin, Zhihao Yang, ‘Opinion mining in e – Learning System’, October 2007 DOI:10.1109/NPC.2007.51, IEEE Xplore

Fatma Alabdullaziz, Manal Muhammad Alanazy, Suzan Alyahya, James E. Gall, University of Northern Colorado, Instructors’ and Learners’ Attitudes Toward e-learning within a College of Education, 970-351-2807

- Félix Castro, Alfredo Vellido, Àngela Nebot , and Francisco Mugia, 'Applying Data Mining Techniques to e-Learning Problems', doi=10.1.1.551.3076.
- Francesco Colace, Massimo De Santo, Luca Greco, 'SAFE: A Sentiment Analysis Framework for E-Learning', iJET – Volume 9, Issue 6, 2014.
- Hongfei Lin, Zhihao Yang, Opinion Mining in e-Learning System, DOI: 10.1109/NPC.2007.51 · Source: IEEE Xplore, October 2007
<http://vassarstats.net/>
IBM SPSS Statistics
- Jasim Mohammed Atiyah, Mohammed M. El Sherbiny, Shawkat K. Guirguis, Evaluation of E-Learning Program versus Traditional Education Instruction for Undergraduate, International Journal of Advanced Research in Science, Engineering and Technology, Vol. 2, Issue 7, July 2015
- Ling Wang, Gongliang Hu and Tiehua Zhou, 'Semantic Analysis of Learners' Emotional Tendencies on Online MOOC Education', Sustainability 2018, 10, 1921; doi:10.3390/su1006192.
- Muhammad Ammar Saleem & Iqra Rasheed, 'Use of E-learning and its Effect on students', New Media and Mass Communication www.iiste.org ISSN 2224-3267 (Paper) ISSN 2224-3275 (Online) Vol.26, 2014
- Muhammad Zaheer, 'E-Learning and Student Satisfaction', Research Gate, November 2015.
- Nabeela Altrabsheh, Mohamed Medhat Gaber, Mihaela Cocea, SA-E: Sentiment Analysis for Education
- Venu Madhav Sunkara 1 and Rajasekhara Rao Kurra, 'An Analysis of Learner Satisfaction and Needs on E-Learning Systems', International Journal of Computational Intelligence Research ISSN 0973-1873 Volume 13, Number 3 (2017), pp. 433-444
- Venu Madhav Sunkara 1 and Rajasekhara Rao Kurra, An Analysis of Learner Satisfaction and Needs on E-Learning Systems, International Journal of Computational Intelligence Research ISSN 0973-1873 Volume 13, Number 3 (2017), pp. 433-444
