

# **Analysis of factor's affecting the implementation of online learning methodology by students: an empirical study**

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## **Abstract:**

The COVID-19 pandemic has altered educational philosophy all across the world. The education system has made a significant transition away from traditional teaching methods and toward online education methods. The goal of the study is to analyze the variables impacting the use of the e-teaching approach of Students are learning in the midst of the current pandemic catastrophe.

## **Design, method, and strategy**

The study was undertaken and a survey was based on primary data With 216 respondents from various colleges and a sample size of a semi-structured questionnaire, India. ANOVA, multiple linear regression, Cronbach's alpha, Pearson correlation, the goodness of fit, and Analyses were conducted. Findings - In addition, the results showed that usefulness and attitude were statistically significant because they make a statistically significant number of forecasts for the practice of pupils' embrace of the e-teaching approach.

## Findings

Furthermore, it was discovered that students there is a Strong encouragement from the school and the teachers is needed to get the pupils interested in online instruction. Additionally, kids ought to be provided the chance to cultivate a sense of empowerment so that they might feel able to share their questions with confidence throughout the online classes.

Research restrictions/implications - This investigation was finished quickly. Therefore, the sample size is limited (216), and the factors influencing whether students embrace the e-teaching style of learning are not all-inclusive. Numerous additional variables might exist and have been overlooked when designing this study.

**Practical inferences** - This study will help the education sector better understand how e-teaching approaches affect students' learning and growth in a more hands-on manner.

**Originality/Value** - In the context of this new pandemic crisis, the study contributes to the body of knowledge in the fields of online learning and teaching. Then, it will be advantageous not only for the students but also for the school and the professors, who will be better able to impart knowledge to the students through the use of e-classes in a sustainable manner.

**Keywords:** *E-teaching, learning, and educational system, higher education, e-learning strategy, e-learning effectiveness, COVID-19, Lecture recording*

## 1. Introduction

Recent developments in computer and network technologies have fueled the growth of distant learning [1]. Additionally, the COVID-19 pandemic, a public health emergency of major global significance that the World Health Organization (WHO) declared to be an outbreak in January 2020, has made remote learning via the E-learning system a crucial and indispensable prerequisite. Online learning based on Internet services has grown accessible and widespread, facilitating the learning system despite the current pandemic that is preventing education from progressing across the globe. Universities and colleges employ software programs like Zoom and Microsoft Teams to further their academic endeavors online.

As a result, institutions in particular and society at large are concerned about the usefulness of E-learning and the results of students' online learning. In reality, research on the elements influencing students' online learning outcomes has grown significantly. Improved communication technologies, according to [2], enable simple learning systems since social media access is a useful source of

information and communication. Both students and professors view online technology as a dynamic component of their own learning processes. Several countries promoted distant learning throughout the pandemic using television broadcasts and online resources. It is a "model change in education" to prioritise distance learning primarily through online platforms.

The clogged education wheel creates some instability for learners' futures, highlighting the significance of technology in our daily lives. The pandemic crisis in particular and other challenges generally can be overcome with the help of online learning [3]. Many, however, asserted that the current state of education is one in which online learning is problematic. Due to the few opportunities for engagement, erratic sound and visual quality because of reliance on Internet quality, and inadequate technological infrastructure, the majority of learners are not interested in online learning. Therefore, the purpose of this study was to investigate the variables that influence students' outcomes when engaging in online learning. The standard exploratory factor analysis (EFA) method was employed in earlier studies to find the representative factors influencing students' online learning outcomes. By using the Bayesian approach to classic EFA, which simultaneously chooses the dimension of the factor model, the allocation of manifest variables to factors, and the factor loadings, this work will add to the body of existing empirical literature. The four steps of conventional EFA are, theoretically, (i) selecting the dimension of the factor model, (ii) assigning manifest variables to factors, (iii) estimating factor loadings, and (iv) eliminating measurements that load on multiple factors. There are numerous ways to choose the latent factor dimension that will be used to extract and rotate the components [4-6].

Currently, information and communication technology (ICT) has significantly changed higher education. In particular, the way that advanced education institutions, colleges, and universities provide learning opportunities to students has undergone significant changes as a result of the use of cutting-edge educational modernizations like tablets, smartphones, PDAs with the wideband network to the web, and social media. In today's hurried living practices, learning and teaching have ended up becoming rapid and casual for both students and teachers through the use of internet-based applications, smartphone apps, and numerous social media platforms. With the digital uprising in the education sector, dynamic information and communication skills have replaced traditional pedagogies and teaching methods by encouraging collaborative learning and instructional innovation.

## 2. Literature Review

- The technology acceptance model (TAM) put forward in [8] served as the foundation for the notion of factors influencing both the success of adopting technology in general and student outcomes for online learning in particular. In the presence of other external variables, Davis introduced TAM to explain people's attitudes and behaviours about the adoption of technology. This model is frequently used in research on technology use behaviour to comprehend the factors that influence users' acceptance or rejection of information systems. Due to its ability to foster creativity, create new learning environments, and modify teaching activities [9, 10], all of which are related to the simplicity of IT operations, information technology plays a significant role in education. Users' perceptions and motivation to learn are directly influenced by information technology usability, user experience convenience, and skill [11]. Studies have shown that TAM variables like perceived usefulness and simplicity of use have a beneficial effect on student learning results. Pradeep Sonar and Sachin Mahale (2014) in their research paper Management Education: Issues, Challenges and Opportunities has focused on the issues faced by students and faculty during online delivery of the content. The paper also explores the issues in online recording of the lecture and the impact of language of delivering the content.

## 3. Research gaps

The field of e-teaching and e-learning research has many facets and is difficult to fully understand. It includes a huge range of research topics, from those that highlight high-tech substructures to those with pervasive socio-cultural implications. The administrators of the relevant institution must make decisions about how the use of this technology will be supported and maintained in the future, for instance, if we examine the use of a certain type of technology in any given establishment. According to the perspective of the teaching method, the adoption of technology calls for the significance of differentiating between the personalities of teachers and students using cutting-edge technology, the establishment of suitable support systems, and the rearrangement of the learning environment.

Any new technology that is implemented has long-term effects on the surrounding community, commonly known as the large communal population that surrounds the institute. Nearly all educational institutions operating in India have changed their methods of instruction from the adoption of e-teaching methodologies traditional classroom classes to online ones in order to

protect the health and well-being of students and teachers in light of the situation of this current pandemic crisis, known as COVID-19. This study is a pilot study that focuses on students from different universities in India. It attempts to investigate numerous elements that affect how e-teaching is carried out and the students' adoption of it. Additionally, there aren't many studies that specifically mention India. Therefore, although being a pilot study, this one will attempt to close this gap and uncover additional aspects that may affect students' successful adoption of e-learning methodologies in the future.

#### **4. Objectives of the study**

- To examine how perception affects how students embrace the e-teaching style.
- To examine the impact of students' motivation on their decision to choose the e-teaching style.
- To examine how students' attitudes affect their acceptance of the e-teaching style.
- To examine the impact of student empowerment on their adoption of the e-teaching technique.
- To examine the impact of utility on students' acceptance of the e-teaching methodology.

#### **5. Hypotheses of the study**

HA:1. Students' perceptions affect their decision to accept the e-teaching style.

HA:2. Motivation affects how readily students accept the e-teaching methodology.

HA:3. Students' attitudes affect whether they adopt the e-teaching style.

HA:4. Student adoption of the e-teaching style is influenced by empowerment.

HA:5. Usefulness affects whether students accept the e-teaching style, according to

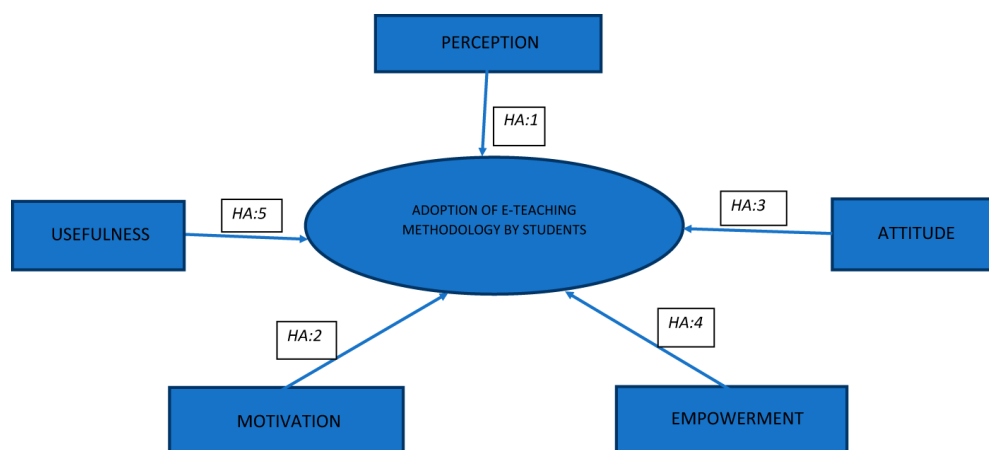
#### **6. Data management**

##### **6.1 Research approach**

6.1.1 Data instrumentation and data gathering. The study is a pilot and primarily focuses on the primary data, for which a semi-structured online survey is developed using Google Docs. The survey includes five factors: perception, motivation, attitude, empowerment, and usefulness of and adoption of e-teaching by students (Figure 1).

##### **6.2 Sample collection method**

Pretesting questionnaires is a relatively simple and cost-effective way to identify questionnaire issues. To determine how a questionnaire might be improved to reduce reply errors, such as a respondent misinterpreting a question, requires a minute amount of research (Converse and Presser, 1986). A total of 216 respondents from different colleges are being collected as a sample size in order to gather data and pre-test the questionnaire's items, which are as follows: University



An electronic questionnaire and the convenience sample method were being distributed to the universities of Delhi, Banaras Hindu University, and IGNOU.

### 6.3 Resources and methods

Dependability is established for the same in order to test the hypotheses and accomplish the objectives. A survey instrument's internal consistency of items is assessed using Cronbach's alpha to determine how reliable it is. Additionally, the data is examined utilizing the Multiple Linear Regression Analysis- Standard Method, Goodness of Fit, Anova, and Pearson Correlation.

### 6.4 Evaluation

Table A1 shows that the questionnaire has an excellent level of internal consistency with a Cronbach's alpha of 0.722. Table A2 shows what Cronbach's alpha would be if that specific item were taken out of the scale. We can observe that the Cronbach's alpha would be slightly lower if any piece were eliminated. Therefore, it will be preferable to leave all of the aforementioned objects in place. For the six items (five predictors and one dependent variable), Table A3 displays descriptive statistics (means and standard deviations).

Following a successful reliability test, we utilised (Pearson Correlation, Goodness of Fit Test and regression analysis). The square correlation matrix is displayed in Table A4. The correlations

table's first major row displays Pearson correlations, and the second major row displays the corresponding probability levels. The other predictors (perception, motivation, and empowerment) have weaker correlations with the dependent variable, with values of (0.148, 0.173, and 0.110), respectively. The dependent variable is the degree to which students adopt the e-teaching methodology. Attitude and usefulness are decently correlated with this variable, compared to other variables (0.252 and 0.226). Empowerment and attitude and (empowerment and motivation) are more highly linked than other pairs among the predictors, with values of (0.651 and 0.552, respectively).

The outcome of evaluating the model's fit is shown in Table A5. The model summary table shows that As can be observed, the multiple correlations (R) are 0.331, and the matching R square is 0.110, implying that a collection of predictors accounts for 11% of the variance in students' acceptance of the e-teaching style. The change in R square is also 0.110.

STUDENTS' ADOPTION OF E-TEACHING METHODOLOGY, PERCEPTION, UTILITY ATTITUDE, CONFIDENCE EMPOWERMENT adoption of e-learning techniques The model only has five predictors, hence the corrected R square value of 0.088 shows some R square shrinkage. A test of the regression model's statistical significance is provided in Table A6 by the ANOVA table. Since there are five factors in the regression model, there are five degrees of freedom.  $N - 1$ , or  $216 - 1 = 215$  degrees of freedom, are available in total, leaving 210 degrees of freedom for the error term. The model significantly reduces the variance of the dependent variable,  $F(1, 210) = 5.167$ ,  $p < 0.001$ . The eta square value is equal to regression variance divided by total variance, which is  $26.437/241.333 = 0.10954$ , or the percentage of the total variation in a dependent variable that is associated with groups defined by an independent variable (0.110 approximately) This is equivalent to R square because The generic linear model is merely expressed differently in ANOVA and linear regression. The coefficients for the variables in the regression model are displayed in Table A7. Correlations are displayed in the three columns on the far right under the headings zero-order, partial, and part, respectively. Regression coefficient details are shown in the very left column. In this model, only the three predictor variables—attitude, empowerment, and usefulness—are statistically significant ( $p < 0.05$ ). Then, only attitude and usefulness, out of the three statistically significant predictors, have the strongest link with students' acceptance of the e-teaching style. This is also supported by the comparison of the unstandardized and standardized (beta) coefficients for these two variables, which are, respectively, (0.241 and 0.231) and (0.141 and 0.154).

## **7. Discussion and conclusions**

The pilot study began from beginning with the creation of a questionnaire, which was then distributed to respondents with the intention of pretesting it to determine its validity and reliability. The results of the reliability analysis, regression analysis, and correlation analysis show that the questionnaire's items had a good reliability score, and the results of the regression and correlation analysis also showed that two of the questionnaire's items, attitude and usefulness, had statistical significance. Both factors have a good correlation with students' use of the e-teaching methodology.

Accepting the third and fifth hypotheses (HA: 3 and HA: 5) while rejecting the other hypotheses follows (HA: 1, HA: 2 and HA: 4). Additionally, it was discovered that there is a strong need on the part of the institute and teachers to pique students' interests in e-teaching and that students should be given the chance to develop a sense of empowerment so that they can feel at ease and discuss their concerns with confidence during the e-classes. This will also alter their existing viewpoint to a positive one, which will be advantageous for the students as well as the institution and the teachers, who will be better able to comprehend the mindset of the students and enhance how knowledge is imparted to them in a sustainable manner to the students through the use of online classes.

## **8. Limitations and future implication**

Within the allotted time, this study was finished. Therefore, with only 216 participants, the sample size is modest. Secondly, of 216 (138 students were from the University of Delhi, 49 from IGNOU and the rest 29 from BHU). The factors that affect whether students accept the e-teaching style of learning are not all-inclusive. Numerous additional variables might exist and have been overlooked when designing this study. There weren't many studies available to conduct a thorough evaluation of the literature. After examining the students' responses, it was discovered that the respondents' degree of interest decreased as they filled out the AJEB 5,120 questionnaire. On a scale of 0 to 5, the frequency of repetitive answers.

As a result, the study seeks to advance by examining more variables and expanding the sample size in order to carry out sustainable research. When this study is finished, the education industry will have a more thorough understanding of how e-teaching approaches affect students' learning and growth.

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