EXPLORING FACTORS INFLUENCING ACCEPTANCE OF E-LEARNING METHODOLOGIES BY MANAGEMENT STUDENTS DURING PANDEMIC

Dr. Vinita Sharma[1], Dr. Tanu Manocha[2]

New Delhi Institute of Management (New Delhi)[1], Amity University (Noida, UP)[2]
E-mail: vinitasharma75@gmail.com ; emailtotanu@gmail.com

Abstract

Objectives

1. To identify the key factors which affect e-learning
2. To study the influence of the factors over the acceptance to e-learning methods.

Due to the pandemic, e-learning has become a mandatory part of students of all academic levels across the globe. This disastrous condition has transformed the mechanism of offline learning into online learning and transformed the learning methodologies from students' perspectives.

This study is an attempt to analyse the level of satisfaction of the management students through e-learning methodologies and platforms. The study will help to find solutions to strengthen the students' self-learning skills. It will also help to find out the students' attitudes towards e-learning during a pandemic.

Research Methodology

Factor analysis is done to find out the factors affecting the attitude of management students of Delhi and NCR region towards e-learning methodologies and e-learning platforms. Further regression analysis is done to find to evolve a structured model to evaluate the attitude of the management students towards e-learning.

Findings

Factors affecting the e-learning methodologies were identified by using statistical tools and are named as Barriers to e- learning, Advantages of e- learning, Comfort of Online Classes, Technical Skills and Support and Cost Benefits.

A linear Regression model was evolved by taking six extracted factors as independent variables and e-learning as a dependent variable. All factors were found to be significant in predicting e-learning methods.

Originality – This study is an original piece of work of the authors

Limitation – The data collection was done from Delhi and NCR region. Same study can be done in other regions of the country and results can be compared.

Practical implications – The study will help the management institutions to evaluate the behavior of the students towards e-learning.

Keywords: COVID–19, E-learning methodologies, factors, management students, pandemic

Introduction

On 30th March, 2020, India encountered with the first case of COVID-19 and after that the transmission of COVID-19 increased very fast. In March 2020, India had to undergo a nationwide lockdown for safety of the citizens. In such a situation, all academic institutions had to adopt ways of teaching and learning through online mode which may also be called as e-learning methodologies and systems.

Although the e-learning system for education purposes existed prior to the pandemic in 2020, after COVID-19, it has become a necessity for almost every educational institution across the globe and e-learning methodologies were adapted by most of the educational institutions. The educational institutions started all their services online. Including teaching sessions, evaluations, project viva s etc. are being conducted over various online platforms across the world due to health safety measures.

E-Learning Methods

E-learning can be referred to as e-education, distant learning, or online learning. E-learning is a broad category of processes that give vocational education and training through the use of available electronic media and capabilities. E-learning refers to the usage of various technical instruments that are Internet-based and used for education. E-learning is a cost-effective method of education which has grown in the past decade and has flexible Internet oriented approach. Students have flexibility to access the lectures anytime. They may repeat the same

lecture multiple times which allows students to better recall the information which is not available in traditional form of education.

The current outbreak of COVID-19 is heavily impacting the physical as well as mental health of students. This outbreak is leading to additional health problems such as stress, anxiety, depressive symptoms, insomnia, denial, anger and fear globally (Torales et al., 2020).

E-learning, which uses diverse technology to enhance the quality of teaching methods and study content, has significantly changed the educational sector (Sulčič & Lesjak, 2009). Basically, e-learning can be defined as the use of various technologies for better communication and exchange of views and information among teachers and students in the education sector in order to enhance the opportunities of online learning for students and providing online services by the universities and other educational Institutions for a better academic outcome (Baris, 2015).

To gain competitive ground, both individuals and companies gain more information, which enables them to focus more attention on the acquisition and retention of knowledge, so that they can benefit from it. Not only development of new technologies and tools in the education sector, but the circumstances which compelled individuals and educational institutions played an important role during the Pandemic 2019 due to which specific tools were used by educationists and students of all levels globally.

E-learning in education has many advantages. Education quality can be enhanced and authentic learning accessible in many ways by introducing the e-learning system, with students being able to access their learning materials easier at all times and anywhere. It also offers inspiration to actively learn. E-learning through broadcast technology, computers, the Internet, video and slides provide the environment of visual and audio learning that leads to a successful process of participation. The online learning platform has been demanded and used considerably, resulting in one of the biggest "online movements" in the education sector’s history (Commentaries, 2020).

Now is the time to seriously reconsider, redefine and rethink our education system, as in this uncertain circumstance we have a very demanding need.

Unprecedented unrestricted video conferencing timings and a rapid progress to online learning during this crisis era have provided revolutionary technical practices. The transition in e-

learning from conventional to more modern and creative methods of teaching was a pedagogical shift from teaching to zoom meeting, Microsoft Teams, Google meet, personal to interactive, conferences, webinars and much more (Sahu, P. 2020).

There are various methods of implementing e-learning but roughly online education can be given to students in the following two ways – synchronous and asynchronous. The real time online learning is the previous type e.g.- e-tutoring, virtual classroom and audio/video conferencing and chat conversation etc. For the later type which is time-independent, examples may be collaborative learning, electronic simulations and other types of non-interactive sessions.

Very common e-learning platforms used by teaching fraternity are Zoom, Google Meet, Facebook live, YouTube live and Microsoft Teams

Literature Review

E-learning, e-government, e-commerce, e-health, e-business, e-banking, and other service delivery models in today's global digital world have all benefited from the rapid rise of information and communication technology (ICT) and the power of the Internet. Electronic learning (e-learning), which makes use of a variety of technologies, has also had a substantial impact on the global education sector. In today's globalized digital world, education, which includes both teaching and learning, is seen as a critical component for gaining a competitive advantage. The field encompasses a variety of delivery methods and tactics that diverges services from the education sector to students. As technology evolves at a rapid pace, new learning opportunities emerge. The goal of e-learning in the education industry is to improve instructional efficiency and student learning. E-learning is at the heart of information systems-driven efforts to digitize the services provided (Arunachalam, 2014).

The e-learning methodology has undergone a radical change over a year. The use of technology has ensured its increasing widespread usage in all domains. It has led to e-learning methods of learning and teaching in schools, colleges and universities. E-learning methodology provides opportunity 24/7/365 to learners to access anywhere and anytime. E- learning acts as an explosion propelled by internet transformation. According to the study (N et al., 2012) e-learning is a revolutionary way to empower the students with the skill and knowledge. It explains that the synchronous tools should be integrated into asynchronous environment to allow “any time” learning mode.

With the increase use of technology, specifically Information and Communication Technology (ICT) and its usage in personal and professional life has marked a tremendous usage. In the current scenario, we all have adapted to this due to the need of an hour. Earlier the decision regarding the acceptance or rejection was a question for the researcher weather to implement and to be more effective. So, accordingly to address the need of the requirement various models and theories were developed for the acceptance and effective usage of technology. The technology acceptance model (TAM) was introduced by Fred Davis. The TAM pointed out that perceived usefulness and simplicity of use have a direct impact on attitudes toward adopting new technologies and another crucial component is the user's attitude, which is defined as the level of interest in specific systems. New model proposed by various researchers in for advancement in TAM model was done by taking into consideration of concepts like "task relevance," "output quality," and "results demonstrability". The aspect of design is of particular relevance in e-learning methods (Toycan & Abdullah, 2017).

Government of India has also taken on many e-learning projects in India which is supposed to be a useful e-learning methodology (Jena, P, 2020).

Several studies (Arunachalam, 2014) suggested student s satisfaction and motivation are important parameters for measuring the effectiveness of e – learning methods. According to (Allen, 2009) has developed various phases for effective e- learning methodology.

A study (Gaglani, 2021) emphasis that e – learning has become mandatory in all educational institutes in schools, colleges and universities in and around the due to pandemic crisis and this has flipped out the offline teaching process. The study reflects that the impact of e- learning, students interest in using e – learning resources and their performance. The study, recommended that e – learning initiative is unique and involves various measures that acts as an indicator to design, built and implement e-learning.

The prior studies has also defined the different categories of e- learning as courses, Informal learning, blended learning, communities, knowledge management, learning networks and also discussed about e-learning tools like curriculum tools, digital library tools and knowledge representation tool.

(Ali, 2020) explains that universities worldwide are moving more and more towards e- learning and apart from resources, staff readiness, confidence, students accessibility and motivation plays an important role in e-learning. The use of technology and technological gadgets to enhance e- learning has become a necessity in times of lockdown during COVID- 19 pandemic.

Students feel more motivated when applying e-learning and hence are more engaged in tasks which gives them lots of learning and success as an end result (Harandi, S. R. in 2015). But there are limitations to e-learning and the biggest limitation is that it increases the pressure on students (Maatuk A.M. et.al, 2021). Therefore, there must be resilience into our education systems (Prokopenko, I., and Berezhna, S. 2020),

(Lim, M. in 2020) claimed that the use of digital academic information for the e-learning process is compulsory for both professors and students. External as well as internal, as stated by Song, L in 2004, are important for any creative transition, as it is a three-step process involving unfreezing-change- refreezing which is the principle of change management.

External as well as internal changes are important for any creative transition, as it is a three-step process involving unfreezing-change-refreezing which is the principle of change management (Song, L in 2004).

The unfreezing refers to the conventional methods which need to be changed into an online teaching mode as this e-learning process has now become a requirement for both an organisation and person, both during COVID 19. The Institutions need to have basic ICT Infrastructure to effectively roll out online learning (Ali, W, 2020).

The second step in the process of change consists of two options, either to literally modify the new online mode or to invent a process. The improvements that are to be made should be result-oriented, time-consuming and a modern way of thinking at all levels of e-learning.

"We must build resilience into our education systems" (Prokopenko, I., & Berezhna, S. 2020). The refreezing is the third trend. The refreezing process is an unavoidable move in order for students to understand stuff by incorporating innovations into our e-learning process.

Online collaborative learning supports intellectual growth rather than the conventional teaching approach. (G. Jacqueline, 1999) Online Collaborative Learning proposes an important method of e-learning in which students are encouraged to work in a team to gain knowledge as well as team work. They learn to innovate, invent, consider and appreciate the opinions of others, which promote a clear answer rather than literature. This method of learning works together so that students can work through it together, as an alternative to the approach, which merges individual and closed decisions in order to achieve an outcome.

Objectives of the study

The study includes the following objectives:

1. To identify the key factors which affect e-learning.
2. To study the influence of the factors over the acceptance to e-learning methods.

Research Methodology

Questionnaire Design

To achieve the first and second objectives, primary data was collected from the students of management institutions of Delhi and NCR through a questionnaire. The data collection took place from December 2020 to January 2021.

The survey included questions concerning demographics, e-learning methodologies, and students' attitudes towards e-learning. To evaluate the perception of management students towards e-learning methodologies, data was collected. To study the attitude of the students towards e-learning methodologies, data was collected by using 5-point Likert scale-based questions. Together with, 3 questions for e-learning methodologies, 37 questions for attitude. The data collected through questionnaire was analysed through MS Excel and SPSS software.

Sample of the study

In total 410 students at different levels were requested to fill the questionnaire through google form. A total of 294 responses were received, with the response rate of around 73%.

Data sources –

The data used for the study was collected from secondary sources and primary sources. The secondary data was collected from the working papers, journals, Dissertations, Conferences and websites in the related field. The Primary data was collected using structured questionnaire.

Tools used – MS Excel charts, SPSS

Analysis and Findings

This section presents objective wise findings derived after doing analysis on MS Excel and SPSS software.

Demographic Profile of Respondents

100% of the respondents reported that they have prior experience with e-learning methodologies and e-platforms, such as attending online webinars, online courses, participating in online exams or workshops and many more. Demographic profile of the respondents was analysed as shown in Table 1.

Table 1: Demographic Profile of the respondents

Variable	Category	N (Percentage)
Gender	Male	164 (55.8%)
	Female	130 (44.2%)
	Total	294
Age	20-25years	276(93.9%)
	26-30 years	18(6.1%)
	Total	294
Kind of course pursuing	Doctoral	3(1%)
	Post-Graduation	280 (95.2%)
	Graduation	11(3.4%)

	Total	294

Source: Primary Data

The characteristics of the respondents are listed in Table 1 which may be explained as -

- The majority of respondents were male, 55.8%, with the rest female, 44.2%.
- 276 respondents' age ranges between 20-25 years of age. 18 respondents were of age group between 26-30 years.
- The post-graduate respondents were maximum i.e., 280.
- 100% of students reported attending online classes and most of them spent more than 6 hours on such classes/e-learning per day.

E-learning Platforms

Table 2 depicts the various forms of e-learning platforms adopted by the students.

Table 2 – E-learning platforms

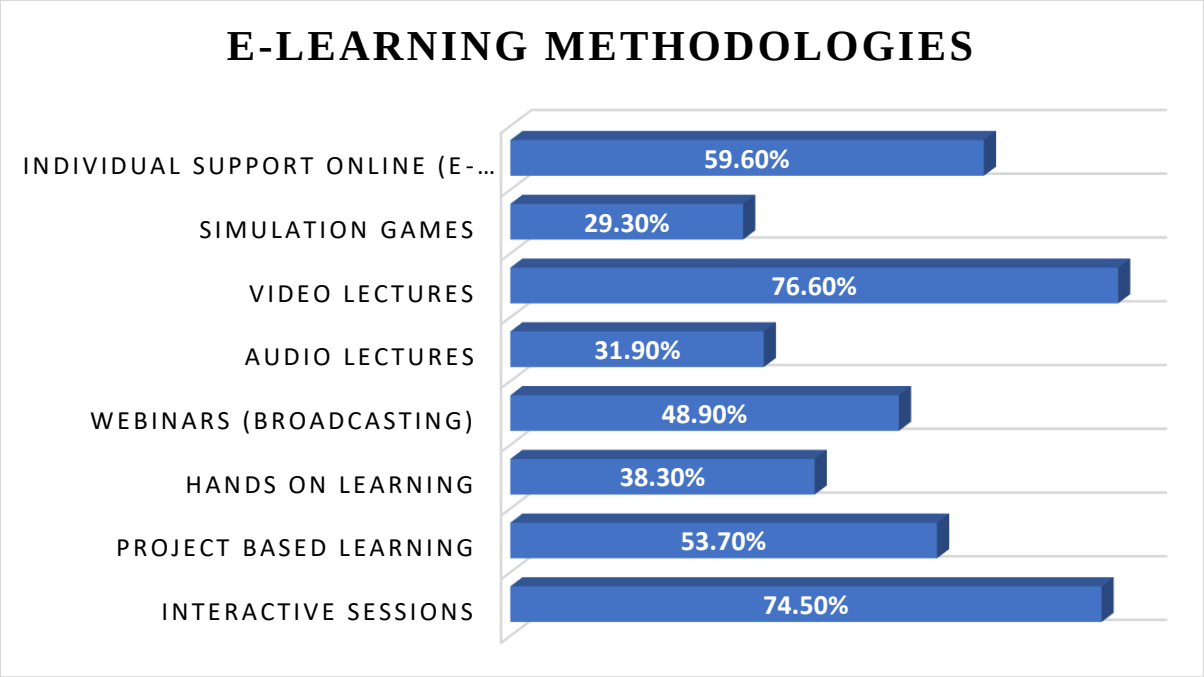
e-platforms	**N (percentage)**
Zoom	178 (60.5%)
Google Meet	260 (88.4%)
MS Teams	39 (13.2%)
Google classroom	126 (42.9 %)
Cisco-WebEx	4 (1.4 %)
You Tube	1 (0.3%)
Others	1 (0.3%)

Source: Primary Data

Table 2 shows clearly that all the e-learning platforms such as Zoom, Google Meet, MS Teams, Google classroom, Cisco Webex and more were used to attend online classes, webinars, and e-workshops. According to the response of most of the respondents, Google Meet was widely used followed by Zoom, Google classroom.

E-learning Methodologies

Figure 1 – E-learning Methodologies



Source – Primary source

Figure 1 reflects all kinds of e-learning methodologies about which students were asked about in the questionnaire. 76.6% students are comfortable with the e-content shared in the form of video lectures, followed by interactive classroom sessions based on online studies.

Factor Analysis

Kaiser Meyer Olkin (KMO) and Bartlett's Test –

Table 3 – KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.944
Bartlett's Test of Sphericity	Approx. Chi-Square	8142.558
	Df	780
	Sig.	000

Source – Primary Source

In line with objective 1, to identify the key factors affecting e-learning. To achieve this objective, Exploratory Factor analysis is done on 41 variables affecting e learning methods. Initially 41 variables are taken and EFA using Principal Component Analysis with Varimax rotation is done. The extracted factors are studied with the help of descriptive statistics. In order to do Factor Analysis, the data should be normally distributed and KMO and Bartlett's test of Sphericity is done to check the adequacy of data.

Table 3 exhibits the KMO and Bartlett s test of Sphericity. The value of KMO is very close to 1, i.e., 0.944 which means sample is adequate. The strength of the relationship in SPSS can be measured by a Bartlett Test of Sphericity. In Table 3 shows the significant value of Bartlett's Test of Sphericity is .000 (<0.05) which indicates that these data do not produce an identity matrix and are thus approximately multivariate normal and **acceptable for factor analysis**.

5.4.3 Output for Factor Analysis

The number of components to be extracted is done by Principal Factor analysis Method using Varimax rotation. All the mentioned 40 variables are included in factor analysis. The principal component analysis with varimax rotation is used and the components with Eigen value more than 1 were considered for the study. Initial Eigen values indicated that there are six factors extracted and these factors show a cumulative variance of 64.207% which is considered good for the study and Table 4 explains the total variance.

Table 4 - Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	16.051	40.127	40.127	16.051	40.127	40.127	8.499	21.249	21.249
2	4.493	11.233	51.36	4.493	11.233	51.36	8.054	20.136	41.385
3	1.572	3.929	55.289	1.572	3.929	55.289	3.818	9.545	50.93
4	1.487	3.718	59.007	1.487	3.718	59.007	2.246	5.616	56.546
5	1.072	2.68	61.687	1.072	2.68	61.687	1.685	4.212	60.757
6	1.008	2.52	64.207	1.008	2.52	64.207	1.38	3.45	64.207
7	0.973	2.431	66.639						
8	0.898	2.245	68.883						
9	0.783	1.956	70.84						
10	0.759	1.898	72.738						
11	0.696	1.739	74.477						
12	0.662	1.654	76.132						
13	0.627	1.569	77.7						
14	0.594	1.485	79.185						
15	0.561	1.403	80.588						
16	0.542	1.354	81.942						
17	0.508	1.27	83.212						
18	0.496	1.24	84.452						
19	0.478	1.195	85.647						
20	0.441	1.103	86.751						
21	0.428	1.07	87.821						
22	0.411	1.027	88.848						
23	0.373	0.933	89.781						
24	0.362	0.904	90.685						
25	0.339	0.848	91.533						
26	0.334	0.836	92.369						
27	0.325	0.813	93.182						
28	0.306	0.764	93.946						
29	0.299	0.747	94.694						
30	0.262	0.655	95.348						
31	0.259	0.648	95.996						
32	0.242	0.604	96.6						
33	0.213	0.532	97.132						
34	0.205	0.511	97.643						
35	0.202	0.506	98.149						
36	0.166	0.415	98.564						
37	0.165	0.412	98.975						
38	0.154	0.385	99.361						
39	0.134	0.335	99.696						
40	0.122	0.304	100						

Extraction Method: Principal Component Analysis.

Source: Primary Survey

Table 5 Indicates the rotated Component Matrix with respective factor loading and labelling of factors are done.

Table 5- Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
traveltimeandcost	-.050	.381	.089	.153	.696	-.046
infrastructurecost	.038	.435	.034	-.069	.645	-.140
technology	-.161	.585	.151	.236	.371	.117
sageonstagetocyber	-.227	.716	.194	.081	.104	.100
growthininternet	-.159	.625	.084	.161	.345	.154
govtinitatives	-.146	.653	.187	.175	.166	.010
selflearning	-.133	.626	.304	.031	.286	-.324
onlinecertifictes	-.159	.733	.248	.105	-.082	-.232
acceptanceofcertificates	-.137	.781	.180	.093	-.096	-.269
onlineandofflinecredits	-.138	.815	.145	.105	.047	-.184
emergencypreparednessplans	-.135	.745	.126	.137	-.004	-.064
smallerunits	-.195	.720	.108	.065	.207	.098
voicemodulation	-.185	.679	.231	.059	.240	-.019
learningability	-.217	.730	.213	.069	.233	.034
reducedanxiety	-.323	.617	.283	.023	.079	.111
qualityofeducation	.590	-.257	-.332	-.207	-.187	.286
newmodesoflearning	.370	-.002	-.037	.004	-.125	.705
appropriatness	.619	-.217	-.225	-.194	-.146	.372
Increasedtechnologicalcosts	.532	-.098	-.006	-.081	.119	.392
reducedinteraction	.645	-.204	-.287	.011	-.034	.076
increasedfrustrationlevel	.774	-.239	-.237	-.024	-.088	.065
infrastructureandbandwidthconnectivityissues	.734	-.226	-.050	-.039	-.020	.118
impactonhealth	.801	-.121	-.200	-.011	-.004	-.013
lackofcollaboratinglearning	.779	-.182	-.281	-.075	-.014	-.031
Addictiontosmartphones	.771	-.120	-.158	-.099	-.003	-.052
nonstopteaching	.702	-.080	-.048	.056	.044	.124
lackofmotivation	.619	-.323	-.229	-.263	-.096	.104
languagebarrier	.428	-.079	.114	-.682	-.033	.082
limitedsocialinteraction	.703	-.127	-.101	-.179	-.033	-.060

insufficientdigitalinfrastructure	.631	-.161	.049	-.468	.020	.104
questionable	.630	-.129	-.104	-.332	-.068	.123
lackofpracticaleducation	.714	-.114	-.259	-.093	-.117	.104
continuelearningsimilartotraditional	-.291	.354	.623	-.024	-.040	-.049
comfortableinonlineclasses	-.327	.428	.579	.168	.161	-.094
sufficientcomputerskills	-.070	.277	.276	.667	.176	.107
adequateadministrativesupport	-.106	.299	.382	.625	-.049	-.069
futureplans	-.143	.353	.636	.268	-.004	.005
newnormal	-.374	.348	.691	.022	.068	.027
communication	-.270	.297	.622	.295	.165	-.133
onlinemodeoflearning	-.450	.255	.687	-.018	.083	.004

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

Source: Primary Data

Labelling the Factors

There are following factors and Table 6 exhibits labelling of Factors.

Table 6 - Labelling of Factors

Factor 1	Barriers to e- learning
Factor 2	Advantages of e- learning
Factor 3	Comfort of Online Classes
Factor 4	Technical Skills and Support
Factor 5	Cost Benefits
Factor 6	Acceptance to New Modes of Learning

Source: Primary Data

Linear Regression Analysis

In line with Objective 2, further Linear Regression Analysis of factors was done in predicting the e–learning Methodologies. For Regression Analysis, "online learning" is considered as dependent variables and six extracted factors are considered as independent variables. Table 7 shows the model fit of Analysis. The table shows the value of R square is 0.656 which depicts that 65.6 % of total variation in dependent variable is explained by independent six factors. So, **model is perfect fit.**

Table 7 - Model fit of Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.810[a]	.656	.649	.761

a. Predictors: (Constant), REGR factor score 6 for analysis 1, REGR factor score 5 for analysis 1, REGR factor score 4 for analysis 1, REGR factor score 3 for analysis 1, REGR factor score 2 for analysis 1, REGR factor score 1 for analysis 1

Table 8 depicts that F-value is found to be significant at 0.000 which means Independent Variables reliably predict dependent variable i.e., online learning or e-learning.

Table 8 - Anova

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	317.771	6	52.962	91.356	.000[b]
	Residual	166.382	287	.580		
	Total	484.153	293			

a. Dependent Variable: online learning

b. Predictors: (Constant), REGR factor score 6 for analysis 1, REGR factor score 5 for analysis 1, REGR factor score 4 for analysis 1, REGR factor score 3 for analysis 1, REGR factor score 2 for analysis 1, REGR factor score 1 for analysis 1

Source: Primary Data

Table 9 shows that all the factors are found to be significant in predicting e-learning with p-value of 0.000.

Table 9 - Coefficients

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.827	.044		63.652	.000
	REGR factor score 1 for analysis 1 (Barriers to e- learning)	-.484	.044	-.376	-10.878	.000
	REGR factor score 2 for analysis 1 (Advantages of e-learning)	.728	.044	.566	16.365	.000
	REGR factor score 3 for analysis 1 (Comfort of Online Classes)	.472	.044	.367	10.616	.000
	REGR factor score 4 for analysis 1 (Technical Skills and Support)	.139	.044	.108	3.133	.000
	REGR factor score 5 for analysis 1 (Cost Benefits)	.279	.044	.217	6.279	.000
	REGR factor score 6 for analysis 1 (Acceptance to New Modes of Learning)	.008	.044	.007	.188	.000

a. Dependent Variable: online learning

Source: Primary data

The equation used for Linear Regression –

For the current analysis, the Linear Regression equation will be –

e-learning = 2.827 + **Barriers to e- learning** * (-0.484) + **Advantages of e- learning** * 0.728 + **Comfort of Online Classes** * 0.472 + **Technical Skills and Support** * 0.139 + **Cost Benefits** * 0.279 + **Acceptance to New Modes of Learning** * 0.008

at confidence level 95%.

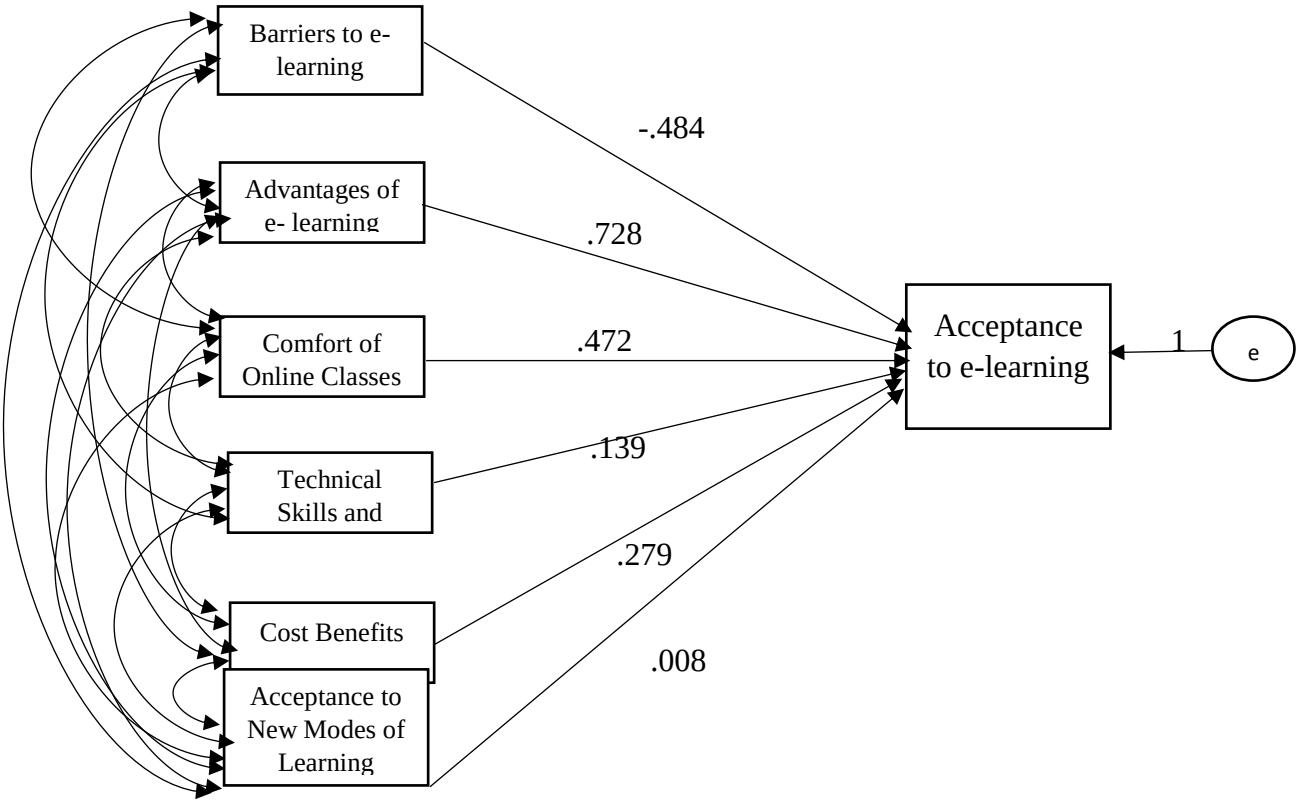
Conclusion

This study examined management students' understanding for various kinds of e-learning methodologies and the factors which influence the e-learning methods. Factors which were identified by using statistical tools are named as Barriers to e- learning, Advantages of e-learning, Comfort of Online Classes, Technical Skills and Support and Cost Benefits. All these factors clearly indicate that these can be considered in analyzing the acceptance to e-learning methodologies which are currently being used to educate management students in Delhi and NCR region. The rapid growth and user-friendliness of e-learning platforms has made e-learning methodologies successful for management institutions of Delhi and NCR.

Then to predict dependent variable of e – learning methods a linear Regression model was used by taking six extracted factors as independent variables. All factors were found to be significant in predicting e –learning methods.

Based on the findings of both the processes, the model shown in the figure-3 was evolved for accessing the acceptance to e-learning.

Figure: 3 – Model for acceptance of e-learning



Limitations

The study is entirely based on young respondents and the results may vary for increased or decreased number of responses. The results obtained are based on current scenario and may change over a period of time. Moreover, this research is done in a specific geographical region. Same kind of research in different geographical areas may produce different results.

Managerial implications

This study can be a learning paradigm in educational institutions to enhance the student's knowledge and skills through digital technologies. As a result of the analysis identified factors and their impacts, can benefit the management institutes.

Scope for Future Work

The future scope of this research is to come up with other students of all age groups at different geographical locations. The hindrances identified can be further studied to improve the e-learning process and each of the factors can be considered for future research and practices.

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