

The Growing Emergence Of E-Learning And Its Effectiveness During Covid-19 Pandemic: A Study Based On Assam

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Abstract: Education, with the prime objective of teaching and learning, is defined as the facilitator of learning. Teaching process can be made effective in various ways while one of the most effective ways is the interaction between teacher and students in a class. So, this study is basically trying to analyse the effectiveness of online teaching-learning process during this pandemic of Covid-19 as the entire education system has moved from traditional learning environment to this virtual or online mode. The results of the study portray the ground reality of this mode as all are forced to adopt this mode due to the prevalent situation and as no one is used to it. Almost all students are having negative experiences regarding this mode and majority of them prefer offline mode of learning than the online mode due to various reasons such as poor network, no interaction between teacher and students and health related issues etc.

Key Words: Online Mode, Offline Mode, Teaching-Learning, Effectiveness, Covid-19, Experiences, Interaction.

Introduction:

The world-wide revolution of Information & Communication Technology (ICT) has been creating global knowledge-based economy in which the whole world has been transforming into a global information hub. In education sector; evolution of E-learning is one of the products of ICT revolution. Definition of E-learning has been changing with time and therefore it is pretty difficult to come up with a universally accepted definition. (Sangra et al, 2012). As a new medium, educational institutions around the globe have been trying to at least partially substitute online classroom for conventional offline classrooms. (Guri-Rosenblit, 2005). E-learning aims at delivering educational content, information, knowledge, training programmes through electronic media. (Li, Lau & Dharmendran, 2009).

The outbreak of covid-19 pandemic and its long-lasting escalation has left no room for educational institutions but to continue education with online mode via electronic mode. Usage of smart phones, laptops, tablets and communication through social media is another form of new normal in these days. Most of the institutes have conducted online examination for students' evaluation. However, despite of its benefits, such as, ease of implementation, time saving, inclusive learning etc. (A. Daveedu Raju et al., 2019), number of different constraints hinders effectiveness of E-Learning.

Assam is one of the largest states of North Eastern Region of India. Despite of its geographical importance, the state is lagging behind other states in terms of its socio-economic indicators. Literacy rate of Assam is lowest among NE states. Considering importance of online education as the need of the hour, especially in pandemic situation, this study focuses on effectiveness of E-learning in Assam from students' point of view.

Literature Review:

Indian E-Learning market for education is expected to grow at a compounded growth rate of 46.48% during 2019-2024 implying higher demand for adoption of new technologies, growth of career based population and growth of internet infrastructure. A study conducted to analyse different factors responsible for eLearning growth in India found that ease of learning, service quality of online education, advanced technology and other external factors are responsible for high growth of E-Learning markets in India (Singh, 2020).

In this present era, many of profit and non-profit making organisations have been competing with each other for providing better E-Learning contents so as to capture larger E-market share. Various organizational or non-organizational sites such as :Edx (2012), Nptel (2003), Coursera (2012), Codecademy (2011), Khan Academy (2008), Skillshare (2010), Future Learn (2012) etc. provide E-Learning contents and materials either commercially or freely. According to a study, five major E-Learning courses in 2019 were- Cloud computing, Artificial intelligence, Analytical reasoning, People management, UX (User Experience) design (Daveedu et al, 2019).

In a study determining factors impacted E-Learning readiness in the University of Nairobi concluded that majority of students are ready for E-Learning with a mean score of 3.95 higher than the expected level of readiness. The study found that- for E-Learning readiness, the most crucial factor is technological readiness followed by cultural readiness (Oketch, 2013). Another study (Gamage& Fernando, 2015) identified ten factors that impact on E-learning. Those were- interactivity, pedagogy, collaboration, usability, network of opportunity, motivation, technology, content, support for learner and assessment.

A case study of Kenya regarding E-learning tools and its effectiveness during Covid-19 lockdown period has found some interesting results such as- (a) among all the apps, Moodle was found as most used app for online class followed by Zoom; (b) most of the students satisfied with online mode of study and they viewed that learning modes have nothing to do with students' learning outcomes; (c) major challenges for E-learning effectiveness was found to be availability of work space followed by network stability and internet cost. (Gitonga&Wambua, 2020).

Panigrahi et al (2011) made a study on effectiveness of distance learning in India with special reference to West Bengal. The results of the study indicate that there exists a strong and positive correlation between average presence of design and service-related attributes and country's GER in general and GER of West Bengal in particular. Another study on factors impacting E-Learning adoption in India found that factors like subscription to certification course of a renowned university

and cost of effectiveness of E-learning courses are prominent factors in the adoption intention of E-Learning services in India (Sharma et al, 2015).

In a study to find out perspective of students of Assam University regarding blended learning technique in Library and Information Science (LIS) department found that many of the students still unfamiliar with this kind of education method. However, out of the known ones, most of them prefer blended learning over traditional method (Sen & Sarmah, 2014).

Various studies focus on the downsides of E-learning which create hindrance in its efficiency. One of the studies conducted for showing E-learning tools and its efficiency at University of Botswana found that in spite of large use of E-learning platforms at the university, poor infrastructure and lack of out campus internet connectivity has created some barrier in this process (Ntshwarang et al, 2021). Again, Roman & Ploeanu (2021) in their study about effectiveness of E-learning for Romanian students of higher studies subject to various constraints found that online teaching-learning process was less effective for students with high mental stress. Analysing current E-Learning situation of India, Anaraki (2004) remarked that the main factors creating downside risk in E-learning markets in India were-boring text based learning materials, lack of rich content for good understanding, insufficient interactivity and unstructured and isolated multi-media instructions. In another study regarding challenges faced in applying digital pedagogy practices to the elementary schools of Sivasagar district of Assam during Covid-19 pandemic, author found that poor internet connectivity and digital illiteracy are the factors that affected teaching-learning process on the part of students (Borah, 2021). The study found inaccessibility of digital tools like smart phone, laptop etc. that prevent students from taking the benefit of online learning.

Methodology:

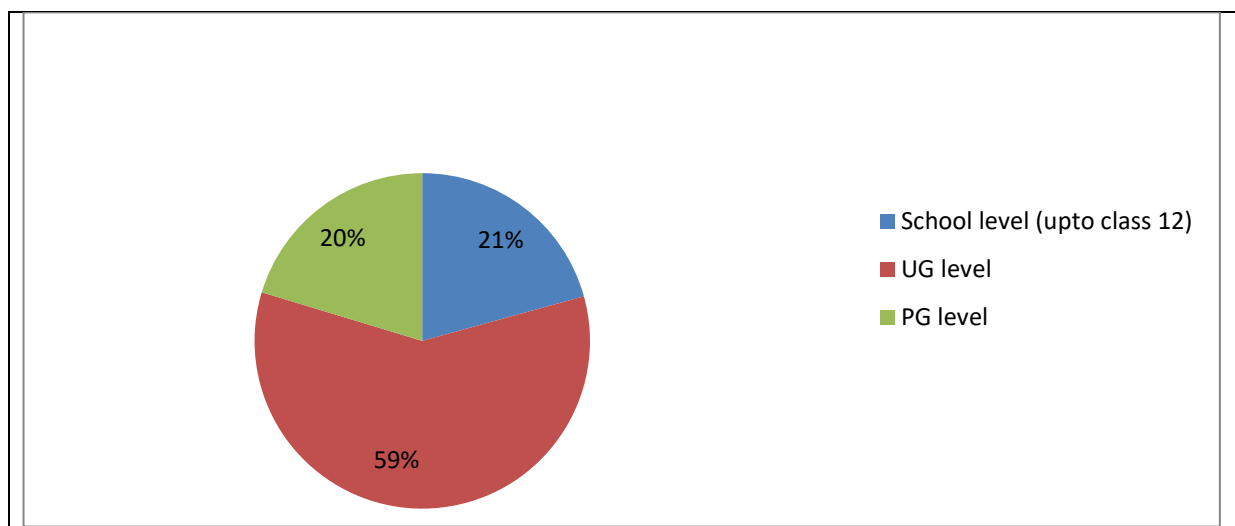
To analyse the effectiveness of E-learning, this study adopted online survey method which is very convenient as per the prevalence of the situation of Covid-19. For this a questionnaire consists of 23 structured and unstructured questions have been prepared. The study targeted students of Assam from different institutions. 33 institutions have participated in this survey among which 3 universities of Assam are also included. The study covered 17 districts of Assam out of 33 districts which made it easy for the study to generalise the results. The duration of the survey was four weeks and it includes 251 students of different educational levels such as – post graduate (PG), under graduate (UG) and school level (up to class 12). A five-point Likert scale has been employed with options such as- (a) Excellent; (b) above average; (c) average; (d) below average; (e) poor. Along with this, one rating scale is also used. For data analysis, softwares like SPSS and MS-Excel have been incorporated along with inclusion of suitable diagrams and tables.

Data analysis:

In order to investigate the effectiveness of E-learning, which is the prime objective of this survey, the study has incorporated students' real-life experiences during online classes which were again divided into positive experiences or benefit and negative experiences or drawbacks. Students' suggestions for better future digital classes are also included.

Out of 251 respondents comprising under graduate, post graduate and school level students, most of the responses come from UG level students pursuing general education in different colleges of Assam.

Figure 1: Educational Level of Students.



As seen from figure-1, least number of responses comes from school level (20%), followed by PG (21%) and UG (59%) level students. The institutions of Assam from where samples are collected are mentioned in table-1

Table-1: Different Institutional levels and their number of responses

1)			Out of which			
Levels of Education	Total Number of responses		Gauhati University(GU)		Dibrugarh University (DU)	Bodoland University (BU)
PG	51		28		12	11
2)			Number of institutions under GU	Responses	Nil	Nil
UG	148	Public institution	16	117	Nil	Nil
		Private Institution	7	31		
3)				Number of schools	Number of responses	
School	52	Public School		2	20	
		Private School		5	32	

From table-1, it is viewed that most number of responses are collected from public education institutions. Out of all the PG level respondents, majority of them came from Gauhati University, followed by Dibrugarh and Bodoland University. Moreover, all the UG level responses were coming from colleges under Gauhati University.

Students' Experience Regarding Online Mode Class:

This survey was like an eye opening experience regarding E-learning behaviour as well as online readiness attitude of students in present digital era. The students gave both positive and negative remarks regarding their online learning experience; however the negative attitude outweighs the benefits of E-learning.

Interestingly, many of the school going students don't have access to smart phones as per the survey result.

Table 2: Number of respondents having own Smart Phone		
Smart phone	Students	Percentage
Have	221	88.04781
Have-not	30	11.95219

11% of the students don't have their own smart phones. They mostly belong to school and UG level. However, out of 11 %, 9% belongs to school level and only 2% belongs to UG level .During this pandemic situation, education institutions all over India as well as Assam have been using various online applications for conducting regular classes. As per the survey, three most familiar applications for online teaching-learning process followed in education institutions of the state are- Google Meet, Zoom and WhatsApp.

Figure-2: Frequently used online applications for online classes during the pandemic

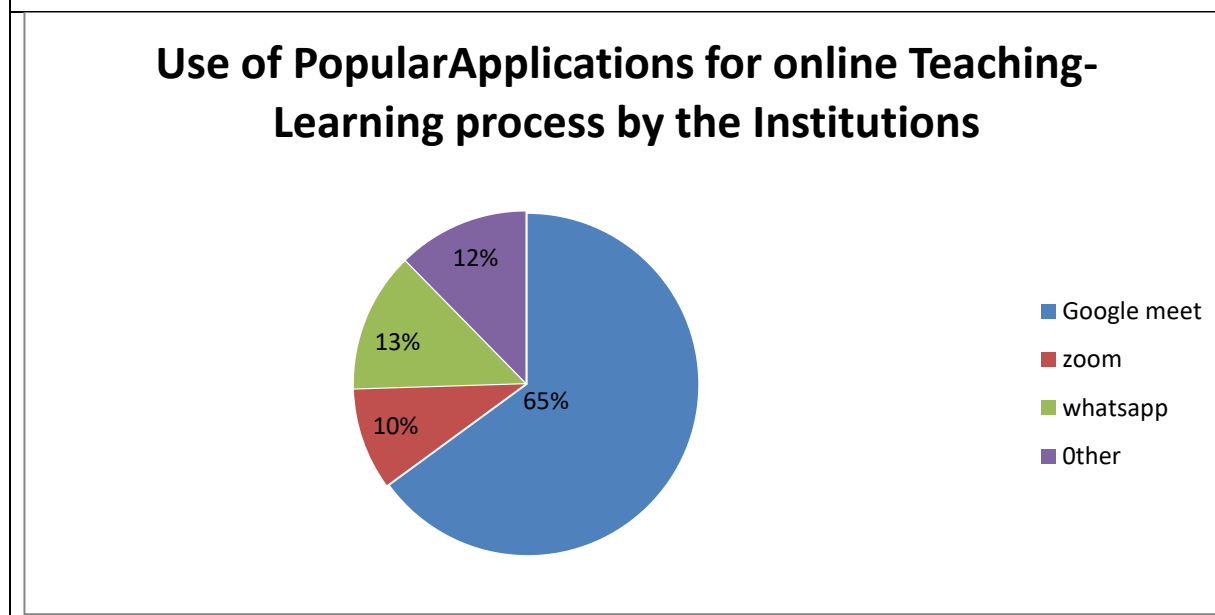


Figure-2 shows that most popular application used for online class is Google meet as 65% respondents advocated for it as most suitable app used by their institutions. The second most used app was found as WhatsApp (13%) followed by Zoom (12%). However, 10 % said that their institutions use other applications for digital classes other than above mentioned apps. Due to its small numbers, this study incorporates all other apps used for online learning into one single "others" category.

After incorporation of Five-point Likert scale for some questions which reflects the whole scenario of E-learning, we have found out that students have slightly negative attitude regarding the online classes.

Table-3	Students responses
Students view on Network Connectivity	48.8247% responded as average with mean value 2.76
Communication between teacher & students	42.63745 % responded as average with mean value 2.82
Effectiveness of online platform	56.6 % responded as poor with mean value 1.79
Subject matter understanding level	48% responded as average with mean value 2.26

Here, 5- Excellent, 4- Above Average, 3- Average, 2- Below Average, 1- Poor.

The five-point Likert-scale considered an interval level. The mean value ranges between 1 to 1.8 implies poor category, values from 1.8 to 2.6 imply below average, values from 2.6 to 3.4 indicate average, values from 3 to 4.20 imply above average and values from 4.20 to 5 imply excellent. From the above table it is clear that the students have mixed experiences regarding this online mode of teaching. However, the results indicate that they are having negative attitude on an average as majority of the students answer ranges between average to poor. To get more clear picture, when we analysed the above four questions separately for UG, PG and School level comprising both public as well as private institutions the answers were similar. So, we can generalise the fact that students as a whole facing some problems regarding this online mode of teaching and learning platform.

Table-4: Students' Preference Regarding Mode of teaching: Online vs. Offline		
Mode	Students	Percentage
Online	37	14.74104
Offline	214	85.25896

As seen from table-4, 85% students responded in the survey prefer offline teaching, only 14% were in favour of online mode of teaching.

In this survey, students were asked to rate online mode of teaching from 1 to 10 on the basis of their individual preference. The answers of the respondents are presented in table-5

Table-5: Students' rating for online mode of classes			
Ratings	Student responses	Percentage	
1	14	5.57	
2	16	6.37	
3	21	8.36	
4	45	17.92	
5	72	28.68	
6	36	14.34	
7	21	8.36	
8	10	3.98	
9	9	3.58	
10	7	2.78	

As we can see from table-5, majority of students (28.68%) give 5 point rating to online mode of teaching implying an average attitude which means that they are almost neutral about their preference regarding online mode of teaching.

The positive remarks given by the students from their own experiences of online classes include time flexibility, reduced travel cost, use of chat box for doubt clearing, comfortable home atmosphere, less physical exhaustion, safe and secure during pandemic situation etc. Most of them said that they can now focus on extra-curricular activities in their extra time apart from regular studies which earlier was not feasible due to strict busy schedules of offline classes and long travel hours.

However, in contrast to a few positive comments, the survey result is flooded with negative comments regarding students' online class experiences. The most common complaint from students was network issue that makes unable for them to understand the subject matter. Other related issues were- lack of effectiveness for practical classes like math and science, unsuitable environment, monotonous due to lack of student-teacher interaction, non-habituated, diversified concentration, health issues like mental stress, hearing problem, migraine etc., inaccessibility of own smart phone, data limitation, poor sound quality, lack of motivation, computer illiteracy on the part of students as well as teachers, low attendance of students and poor response of them and so on and so forth. Most of the students said that they had more concept clarity in offline mode classes when teachers explained concepts using black boards. According to majority of the students participated in this survey online mode of teaching as a vision of government's digital India mission will not be successful until as unless online infrastructural backwardness is not taken care of.

Suggestions provided by students to make e-learning effective:

In the questionnaire, students are asked to give suggestions regarding measures that need to be taken for better online teaching-learning process in the future from students' view point. Majority of the students mentioned that teacher – student interaction needs to be there to make the class more effective. Apart from that some of the students viewed that teachers should make at least one video on a particular topic on weekly basis explaining properly by using black board and other devices and upload it on You Tube or on their class wise respective WhatsApp groups, so that students can

access them at any time and at free of cost. Teachers should provide PDF and other study materials to students in apps like Google Classroom, Edmodo etc. on a regular basis. Apart from this, most of the respondents suggested that teachers should make online interaction more attractive and fun by conducting quiz, seminar and other tasks. Teachers should use good quality camera and microphones; virtual board, PPT, flow-chart etc. for better concept explanation as per the suggestions provided by the respondents.

Conclusion:

From the above study it is observed that the online mode of teaching is new for students as well as on the part of teachers. Both the parties are not habituated and the ongoing situation compelled them to adopt this mode of teaching- learning process as there is no other way left during this pandemic situation. Besides, the study showed the clear pictures of effectiveness of this mode which is found to be quite low as the infrastructure as a whole does not support this mode of education at least for Assam. So, it is clear that strengthening of the infrastructure is a must and it will take some time on the part of both teacher- students to get familiar with this mode. However, it will be very interesting to see, what will be the effectiveness of this e-learning in the near future if the situation of pandemic persists

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