A Comparative Study on Responses Between Indian Educators and Students Attributed to E-learning

Souti Das[1*], Somnath Gangopadhyay[2]

[1]*Masters Student, Department of Physiology, University of Calcutta, Kolkata, India*
[2]*Professor, Department of Physiology, University of Calcutta, Kolkata, India*

Abstract: **E-learning has become a powerful instructional tool for all educational institutions in response to the COVID-19 pandemic. This study aims to see if there are any discrepancies between responses of educators and students in terms of e-learning by using the Pearson Chi-square test and Cramer's V value analysis. It covers issues like institutes' contribution, system and information quality, user satisfaction, system use, and the work environment through Google forms, empirical data contributed by 319 e-learning users (Educators-131, Students-188) from various Indian institutions. We found that the students and educators are willing to join offline classes/works in combination with online classes.**

Keywords: **Online education, Pedagogy, Pearson Chi-square test, Observed and expected frequency, Indian academicians, COVID-19.**

1. Introduction

The purpose of education is to develop a person into a perfect individual. Education paves the route for them to achieve their goals. Education also aids in the instillation of societal obligations. Learning is at the heart of education. Learning is the process of obtaining new information or skills through study, practice, or instruction [1]. Any major accident that occurs anywhere in the world will always have an impact on education system. And so the COVID 19 pandemic has its footprints on education.

COVID-19, a novel corona virus disease, was first found in Wuhan, China, in December of this year. SARS-Cov-2 (Severe Acute Respiratory Syndrome Corona virus 2) is a pathogen that attacks the human respiratory tract and is known to cause pneumonia-like symptoms. On March 11, 2020, the World Health Organization (WHO) declared the virus as a pandemic, citing the infection's uncontrolled spread over the world [2].

Technology has played a critical part in the current pandemic, which has engulfed the entire planet. People's lives have been drastically altered as a result of technological advancements and the internet, as well as significant changes in a variety of professions [3]. E-learning has been found to be an important instrument for effectively sustaining the teaching-learning process during the lockdown, particularly in the

educational sector. The internet has evolved into one of the most essential learning media, allowing individuals all over the world to quickly access education for free or at a reasonable cost [4]. E-learning has taken hold in the realm of modern education in particular [5].
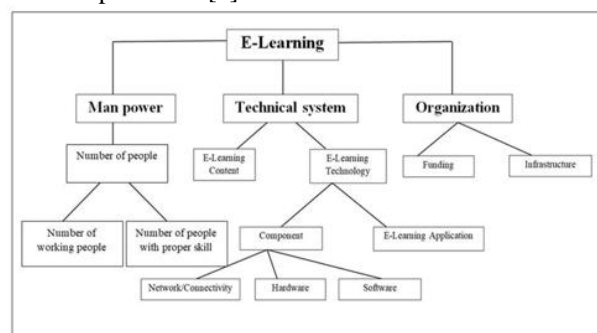

Fig. 1. Components of E-Learning

E-learning can be seen of as a tool for achieving three important goals: higher and more constant rates of lifelong learning, increased productivity, and increased innovation and competitiveness. Increased equity is another intended effect. Globalization of education is accelerating: students attend classes from all over the world, while employees work and study in international corporations all over the world. E-learning consists of mainly three parts a) Man power b) Technical system c) Organization's contribution. (Fig. 1) Schematic description of those three points was collected and rearranged by authors for better understanding. Under the manpower category not only the numbers of working peoples are determined but also the number of people with proper skills to handle this new system of teaching is of very much importance [6]. In technolgical aspect both the content of study materials as well as software, hardware are into vital considerations for conveying online educations. Funding for this online education system are of very much important because primarily to set up the basic stage for e-learning is of little bit costly. Every organization (School/ Colleges/ Universities) must have co-operated with educators as well as with students by providing proper resources to establish the

*Corresponding author: soutidas997@gmail.com

infrastructure for e-learning. For many industries around the world, the implications of a pandemic are irreversible and unpredictable. Nearly 120 countries have now discontinued teaching face-to-face, and COVID-19 has impacted the education of approximately a billion kids around the world. E-learning is used by the majority of higher education institutions [7], [8].

Quality education and its infrastructures such as computers and contemporary IT equipment are now in increasing demand, and institutions are revamping their teaching methodologies to incorporate intellectual capital [9], [10]. Thus, an unexpected shift from face-to-face learning to online, causing some serious difficulties for students and lectures. Furthermore, most countries have considerable problems with technological infrastructure in rural areas; as a result, the quality of online education may be a critical issue that requires immediate attention [8].

2. Aim and Objectives

A. Aim

The aim of the study is to find out the adaption and opinions of students and educators about e-learning.

B. Objectives

The objectives of this study are to identify if there are any relations in responses between e-learning users (Educators and Students) and different e-learning prospects as follows,
  a) If there is any relation in preferred education mode.
  b) Whether there is any relation in feedback regarding online shift.
  c) If there is any relation in using video lectures as part of education.
  d) Whether there is any relation regarding development on online education platforms.
  e) If there is any relation in opinion about institutions 'resources and infrastructure for e-learning.
  f) Whether there is any relation in opinion about Institutions 'development for e-learning.
  g) If there is any relation in their opinion about best possible studying method.
  h) If there is any relation in opinions regarding home circumstances during classes.
  i) Whether there is any relation in maintaining Work-life balance during classes.
  j) If there is any relation regarding prevalence of mental Stress.
  k) If there is any relation Opinion about present e-learning.
  l) Whether there is any relation regarding opinion about future of e-learning.
  m) If there is any relation in opinions about retention of E-learning.
  n) If there is any relation in frequency of having 1:1 discussion with students/educators.
  o) Whether there is any relation regarding network issues.
  p) If there is any relation about importance of eye-to-eye communication.

3. Methodology

The questionnaire (attached in the supplementary file) containing 16 questions were aimed at studying various aspects of the current e-learning/teaching contexts, methods, procedures, utilities as well as its future prospects. Because of the pandemic, the survey was developed and performed using the free software "Google forms" and was circulated through different social media platforms like Gmail, WhatsApp, and Facebook etc. Multiple-choice questions were used to ask the questions. There were no 'yes' or 'no' options in the questionnaire; rather, it was designed to examine the general consensus. The survey was conducted from 1st Week of April 2021 to 2nd week of May.

A. Study Design

This study is based on data collected from different Indian academics. Experimental subjects are of different ages belonging to different states of India.

1) Selection of Subject

In this study, 319 e-learning users (Educators/Students) were randomly selected, among them 131belongs to educators and rest 188 of them belongs to students. Each group of subjects were divided into three age groups: below 30 years, 30-45 years, and above 45 years for educators, and 16-19 years, 20-23 years and above 23 years for students. Those e-learning users, had experience of using both offline and online mode of education, were included in this study. In Indian education system computer is a course subject from class 6 or 7; so it was presumed that every students included in this study have had basic computer knowledge (Fig. 2). Student under the age of 16, private tutors as well as users who have only experiences in any one mode of education (offline/online) were excluded from this study. By asking verbally when we knew about those users have any major eye problems such as glaucoma, blindness, cataract etc. or those had recently undergone any sort of eye surgeries were excluded from this study as well.

Fig. 2. Responders details

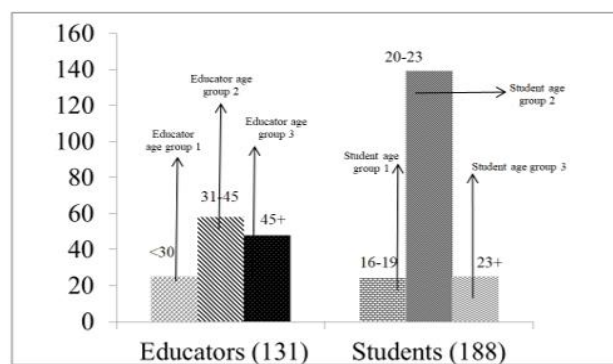#### 2) Statistical analysis

To study the difference in responses between educators and students observed and expected frequency table is used for 16 questions.2 x 3 Pearson Chi-square test is used in this study to identify significant association between of e-learning and e-learning users (Educators and Students). As the variables used in this study are nominal variables so the counts are taken into

measures and thereby expected frequency had been calculated to perform the chi-square test for independence [11]. Highly significant chi-square value (p<0.05) defines that both groups have significant difference in response and significantly lower chi-square value (p>0.05) indicates that both these two groups are associated with each other.

Assumptions of Chi-Square test.
  a) The variable categories in this study are mutually exclusive.
  b) The responses (Educators/ Students) are independent of each other.
  c) In at least 80% of the cells, the expected values are 5 or higher, and there are no cells with zero values [12].

After performing the Chi-square test, the Cramer's V value was measured to determine the strength of significance between both of these variables [11].

SPSS version 22 was used to perform statistical analysis on this data set.

4. Result

Position in the academics (as an educator or as a student) is placed in the row and 16 questions were placed in the column in one each to calculate the observed and expected frequencies of responses and those were represented in Table 1 – Table 16

Table 1
Frequency of responses regarding preferred teaching/learning mode

			"Preferred teaching/ learning mode"			Total
			Online	Offline	Both	
	Educator	Count	12	37	82	131
		Expected Count	21.8	44.8	64.5	131.0
	Students	Count	41	72	75	188
		Expected Count	31.2	64.2	92.5	188.0
Total		Count	53	109	157	319
		Expected Count	53.0	109.0	157.0	319.0

Table 2
Frequency of responses regarding offline to online shift

			"Your feedback regarding the shift from offline to online mode of education"			Total
			Very Bad	Moderate	Very good	
	Educator	Count	10	97	24	131
		Expected Count	20.5	92.0	18.5	131.0
	Students	Count	40	127	21	188
		Expected Count	29.5	132.0	26.5	188.0
Total		Count	50	224	45	319
		Expected Count	50.0	224.0	45.0	319.0

Table 3
Frequency of responses regarding using video lectures as part of education

			"How often you use videos such as YouTube videos (or any other videos) as a part of your lecture/study?"			Total
			Never	Sometimes	Very often	
	Educator	Count	17	87	27	131
		Expected Count	9.0	78.0	43.9	131.0
	Students	Count	5	103	80	188
		Expected Count	13.0	112.0	63.1	188.0
Total		Count	22	190	107	319
		Expected Count	22.0	190.0	107.0	319.0

Table 4
Frequency of responses regarding improvements seen in the facilities offered by the education platforms

			"How much improvement have you seen in the facilities offered by online education platforms during this pandemic?"			Total
			Not at all	Very few	Too many	
	Educator	Count	11	64	56	131
		Expected Count	11.9	69.0	50.1	131.0
	Students	Count	18	104	66	188
		Expected Count	17.1	99.0	71.9	188.0
Total		Count	29	168	122	319
		Expected Count	29.0	168.0	122.0	319.0

Table 5
Frequency of responses regarding resource providence by institutes

			"How helpful was your institution (School/College/ University) in offering resources for online education?"			Total
			Not at all	Very few	Too many	
	Educator	Count	16	44	71	131
		Expected Count	17.7	63.7	49.7	131.0
	Students	Count	27	111	50	188
		Expected Count	25.3	91.3	71.3	188.0
Total		Count	43	155	121	319
		Expected Count	43.0	155.0	121.0	319.0

respectively. Observed and expected frequencies were calculated for 2x3 Chi-square of independence testing (Table 17).

A. Preferred teaching/learning mode

Most of the educators (25.71%), as well as students (23.51%), preferred blended (offline and online) modes of education.

B. Feedback regarding the shift from offline to online mode of Education

Maximum of the educators (30.41%), and students (39.81%),

rated moderate when they asked about their feedback for offline to the online shift of education.

C. Using videos such as YouTube videos (or any other videos) as a part of lecture/studies

Most of the educators (27.27%), and students (32.29%), said that they sometimes used video lectures for their education purposes (teaching/studying).

D. Improvements have seen in the facilities offered by online education platforms during this pandemic

Both educators (20.06%) and students (32.60%) mostly

Table 6
Frequency of responses regarding development of institute infrastructure

			"According to you, how far has your institute developed online education infrastructure from the beginning of the pandemic till now?"			Total
			Not at all	Moderate	Developed a lot	
	Educator	Count	13	39	79	131
		Expected Count	14.4	55.8	60.8	131.0
	Students	Count	22	97	69	188
		Expected Count	20.6	80.2	87.2	188.0
Total		Count	35	136	148	319
		Expected Count	35.0	136.0	148.0	319.0

Table 7
Frequency of responses regarding most effective studying method

			"Which one of the following methods of studying do you think is most effective?"			Total
			Book study	Video lecture along with e-books and study materials	Both	
	Educator	Count	6	13	112	131
		Expected Count	14.0	12.7	104.3	131.0
	Students	Count	28	18	142	188
		Expected Count	20.0	18.3	149.7	188.0
Total		Count	34	31	254	319
		Expected Count	34.0	31.0	254.0	319.0

Table 8
Frequency of responses regarding peacefulness in home circumstances during online classes

			"How peaceful is the environment at home while teaching/learning online?"			Total
			Not peaceful at all	Quite peaceful	Totally peaceful	
	Educator	Count	8	39	84	131
		Expected Count	13.6	54.6	62.8	131.0
	Students	Count	25	94	69	188
		Expected Count	19.4	78.4	90.2	188.0
Total		Count	33	133	153	319
		Expected Count	33.0	133.0	153.0	319.0

Table 9
Frequency of responses regarding maintaining work-life balance

			"How well could you maintain a work-life balance while online classes?"			Total
			Not at all	Moderate	More than before	
	Educator	Count	9	69	53	131
		Expected Count	23.0	66.9	41.1	131.0
	Students	Count	47	94	47	188
		Expected Count	33.0	96.1	58.9	188.0
Total		Count	56	163	100	319
		Expected Count	56.0	163.0	100.0	319.0

Table 10
Frequency of responses regarding mental stresses due to education

			"As an e-learning user, how much mental stress are you experiencing during the pandemic as compared to the pre-covid era?"			Total
			No stress at all	Moderate stress	Too much stress	
	Educator	Count	23	58	50	131
		Expected Count	20.5	60.4	50.1	131.0
	Students	Count	27	89	72	188
		Expected Count	29.5	86.6	71.9	188.0
Total		Count	50	147	122	319
		Expected Count	50.0	147.0	122.0	319.0

agreed that they have seen very few improvements in those online learning platforms such as Google meet, Zoom etc.

E. Assistance provided by institution (School/College/University) in offering resources for online education

Most of the educators (22.26%) have agreed that they had received too many facilities by their corresponding institutes (School/College/University) whereas most of the students (34.80%) said that they get very little assistance by their institutes.

F. Development seen institute for online education infrastructures from the beginning of the pandemic till now

Most educators (24.76%) thought that their corresponding institutes (School/College/University) had seen a lot of progress, but most students (30.41%) stated that their institutes had seen modest development from the start of the pandemic until now.

G. Most effective studying method

The majority of educators (35.11%), and students (44.51%), think that combination of book study along with online e-books, study materials are most effective measures for studying.

H. Peacefulness in home circumstances while online teaching/learning

Most of the educators (26.33%) accepted that they had a very peaceful environment in their home while taking online classes whereas most of the students (29.47%) said that they don't have totally peaceful circumstances in their home while classes rather they have a moderate peaceful environment.

I. Maintaining work-life balance as an educator/student in these days

Majority of the educators (21.63%), along with students (29.47%), have agreed that they can maintain moderate work-life balance during this new mode of education.

J. Mental stress experiencing during the pandemic as compared to the pre-covid era

Most of the educators (18.18%), as well as students (27.90%), said that they feel moderate　mental stresses than before in this new process of learning.

K. After using this online mode for almost a year opinions about it

Maximum educators (28.84%), and students (33.23%), have

Table 11
Frequency of responses regarding opinion about e-learning after using it for almost a year

			"After using this online mode for almost a year how do you feel about this mode of education?"			Total
			Not liked at all	Quiet good	Too good	
	Educator	Count	17	92	22	131
		Expected Count	29.2	81.3	20.5	131.0
	Students	Count	54	106	28	188
		Expected Count	41.8	116.7	29.5	188.0
Total		Count	71	198	50	319
		Expected Count	71.0	198.0	50.0	319.0

Table 12
Frequency of responses regarding future of e-learning

			"In your opinion as an e-learning user, will "E-Learning" will be the new reality in the near future?"			Total
			Not at all	To quite an extent	Definitely	
	Educator	Count	10	77	44	131
		Expected Count	12.3	80.1	38.6	131.0
	Students	Count	20	118	50	188
		Expected Count	17.7	114.9	55.4	188.0
Total		Count	30	195	94	319
		Expected Count	30.0	195.0	94.0	319.0

Table 13
Frequency of response regarding views about retention of e-learning

			"When everything will be normal like before how far do you think this online mode should be retained?"			Total
			Definitely not	Moderately	Totally	
	Educator	Count	45	73	13	131
		Expected Count	49.7	67.3	14.0	131.0
	Students	Count	76	91	21	188
		Expected Count	71.3	96.7	20.0	188.0
Total		Count	121	164	34	319
		Expected Count	121.0	164.0	34.0	319.0

Table 14
Frequency of responses regarding 1:1 discussion with your student/Educator

			"How often do you have a 1:1 discussion with your student*/educator?"			Total
			Never	Sometimes	Very often	
	Educator	Count	9	79	43	131
		Expected Count	15.6	82.1	33.3	131.0
	Students	Count	29	121	38	188
		Expected Count	22.4	117.9	47.7	188.0
Total		Count	38	200	81	319
		Expected Count	38.0	200.0	81.0	319.0

agreed that they feel this mode   of new education system is quite good.

L. Opinion about the future of "E-Learning"

The majority of educators (24.14%) and students (36.99%) think that in the near future, e- learning should be available in a large scale, as well as in combination with offline mode.

M. Views about the retention of this mode of learning when everything will be normal

Most of the educators (22.88%), as well as students (28.53%), have accepted that this mode of new education system should retain moderately in near future.

N. Frequency of having 1:1 discussion with student/Educator

Majority of the educators (24.76%), and students (37.93%), have agreed that they get 1:1 discussion with their students or with their educators sometimes.

O. Prevalence of facing network issues during classes

Most of the educators (32.60%), as well as students (42.95%), have opt out that sometimes they receive network issues during classes.

P. Effect of not having eye-to-eye communication during online classes

Maximum number of educators (19.12%), as well as students (29.47%), said that they feel little bit bothered by don't having eye-to-eye interactions with their students or with their educators.

Q. Analysis Output: 2 x 3 Pearson Chi-Square test results and Cramer's V measures

Value of 0.001 indicates the null hypothesis of independence is rejected. The Pearson Chi-Square values in table 17 shows that there is relationship between e-learning users (Educators and Students) and different prospects regarding e-learning except improvements they had seen about facilities offered by different e-learning platforms, mental stresses they were experiencing in comparison to pre-covid time, their opinions about the future of e-learning as well as retention of it too, their experiences about facing network issues and absence of eye-to-eye communication with others during classes. Evaluated against 2 degree of freedom, the chi- square value is statistically significant ($p<0.05$) for 12 questions out of 16 whether tested asymptotically (the default output) or exactly (as we requested).

Table 15
Frequency of responses regarding network issues

			"How frequently do you face network issues during classes?"			Total
			Never	Sometimes	Very often	
	Educator	Count	9	104	18	131
		Expected Count	7.0	99.0	25.1	131.0
	Students	Count	8	137	43	188
		Expected Count	10.0	142.0	35.9	188.0
Total		Count	17	241	61	319
		Expected Count	17.0	241.0	61.0	319.0

Table 16
Frequency of responses regarding absence of eye-to-eye communication

			"During online classes, absence of eye-to-eye communication with your students/educators bothers you to what extent?"			Total
			Not at all bothering	Little Bothering	Extremely bothering	
	Educator	Count	16	61	54	131
		Expected Count	21.4	63.7	46.0	131.0
	Students	Count	36	94	58	188
		Expected Count	30.6	91.3	66.0	188.0
Total		Count	52	155	112	319
		Expected Count	52.0	155.0	112.0	319.0

Table 17
Chi-Square test values and Symmetric measure (Cramer's V) values

Question No.	Pearson chi-square value	Degree of Freedom (df)	Asymptotic significance (2-sided)	Cramer's V value	Approximate Significance
1.	17.802	2	0.001*	0.236	0.001*
2.	12.430	2	0.002*	0.197	0.002*
3.	24.750	2	0.001*	0.279	0.001*
4.	1.909	2	0.385	0.077	0.385
5.	26.067	2	0.001*	0.286	0.001*
6.	18.119	2	0.001*	0.238	0.001*
7.	8.677	2	0.013*	0.165	0.013*
8.	23.539	2	0.001*	0.272	0.001*
9.	20.448	2	0.001*	0.253	0.001*
10	0.661	2	0.719	0.046	0.719
11.	11.163	2	0.004*	0.187	0.004*
12.	2.223	2	0.329	0.083	0.329
13.	1.668	2	0.434	0.072	0.434
14.	9.782	2	0.008*	0.175	0.008*
15.	4.791	2	0.091	0.123	0.091
16.	4.830	2	0.089	0.123	0.089

*=Significant ($p<0.05$)

Thus by this study it can be conclude that there is a relationship between e-learning users and different prospects of e-learning. Squaring Cramer's V values for 16 questions yields the values approximately 0.06, 0.04, 0.08, 0.01, 0.08, 0.06, 0.03, 0.07, 0.06, 0.01, 0.03, 0.01, 0.01, 0.03, 0.01, and 0.01 respectively; it therefore appears that the two variables (e-learning and e-learning users) share approximately 5%, 3%, 7%, 0.5%, 8%, 5%, 3%, 7%, 6%, 0.2%, 3%, 0.6%, 0.5%, 3%, 1%, 1% of their variances for 16 prospects of e-learning.

5. Discussion

E-learning was first used during a CBT (Computer Based Training) systems presentation in 1999. It's also known as "virtual" or "online" learning [13]. According to the recorded data, Microsoft team users were 750 on March 10th, but by March 24th, they had climbed to 138698, a huge increase [14].

In this present study, there are significant differences in responses based on Pearson chi-square test analysis among different contexts of e-learning and e-learning users (educators and students). Frequencies of answering in this questionnaire were significantly different among educators and students irrespective of ages. Opinions regarding preferred learning mode showing significant difference between educators and students. As per frequency of responses Majority of the educator's favors both online and offline modes of teaching; while at the same time most of the students prefer offline mode mainly along with both modes of learning; the probable causes behind this discrimination may be due to occurrence of eye strains, insomnia, sensitivity to light, backbone and posture related problems blood pressures diabetes [15], [16] etc. Nowadays material printing is a major issue in students for selecting offline mode of learning, not every students has the accessibility to get it whenever they need [15].

Shifting from offline classes to online classes is significantly different in educators in comparison to students. Frequency analysis showing that this shift was not so smooth not only for educators but also for students because this shift was never pre-planned for anyone and for obvious reasons not everyone may have the same adaptability capacities, everyone may not be get enough time to arrange all equipment's (Smart phone, Laptop/desktop, Wi-Fi router) as well as study materials as needed. Because of the abrupt enactment of this lockdown, none of the students have enough study materials with them, and they are completely reliant on digital sources such as the internet and those provided by teachers. Even if they have all of the materials, communication can be difficult [15].

Using video lecture as a part of studies is more common in students because in this modern era there are so many online learning platforms were present even before the pandemic, so maybe they utilizing those for their studies from a long ago, in college levels nowadays most of students get their own smart phones so may be it helps them to exploring those free online resources to clear their concepts. But these are not at all familiar in educators before the pandemic may be because of their high workloads, generation gaps etc. In this critical situation several learning platforms have put a step forward to help students by offering free access to live lectures so that students can learn comfortably from homes and educators in those platforms have also begun to take more live classes [17]. E-learning satisfies the needs of today's learners while allowing them to work at their own pace. As a result, it has shown to be fruitful for a variety of reasons. It can be accessed at any time by paying memberships to various platforms or logging in to access the courses at the learner's leisure [18].

Academic needs nowadays have been met mostly through the use of tools such as Google Classroom, Teams, and Zoom. Responses regarding online learning platforms are similar in educators and students. Frequency table shows that both of them moderately rate these teaching platforms. Reason may be due to security issues [15].

Educators and students showing significantly different responses for their institutes' provided resources and infrastructures for online educational purpose, though most of them agreed that the providence of resources are moderate but some educators agreed to marked their institutes' providence as optimal ones. In India all institutes are not equally equipped so this sudden onset of COVID pandemic left no time for them to prepare proper resources, time to time it will be improved. Most Indian colleges have encouraged professors and students to use e-learning platforms for instructional purposes and to encourage students to study from their homes [19].

Educators and students both believes that e-book or online available study materials are good but it may not be replace the book study completely, but using e-books in combination with book study is most effective for study may be due to availability of regular updates in any important fields related to education in e-books. Certain e-manuals, such as PDFs, are available for free. It gives clear, simple, and incremental instructions to help learners understand them better. It is frequently regarded as the best method for self-study. It provides learners with a vast choice of materials that cover practically all themes and concerns [20].

Response regarding environment in home during online classes is significantly differs between educators and students. As per frequency table educators have a more peaceful environment at home while teaching, as educators are financially independent so they have their own workplace in home but this is not the case for the majority of students because may be they have unavailability of free rooms during classes, may be they have regular disturbances in their localities.

Although some educators maintain a better work-life balance but in students' work-life balance is not effectively managed because humans are social creature so they not living in isolation for a long period of time, Personal connection with an instructor in an offline setting is more effective in disseminating knowledge than online education, according to studies [15].

Mental stress nowadays is very common in both of these groups' people but more significantly in students may be because timed assignments, which are associated with students' rapid performance, have become a cause of stress. Counseling is required, and the government should ensure that digital tools are available, particularly to disadvantaged rural households [15]. COVID-19 and during lockdown studies on college students in China have found considerable negative effects on

students' psychological well-being and excessive levels of anxiety [21].

Responses based on opinions, retention as well as future of e-learning is mostly similar in educator and students, both of them agreed that this mode is a moderate one but yes if it will retain in the near future along with offline classes then this will be the best one. According to the literature, online education should equally as successful as offline education and has its own set of benefits. Additional elements, such as the necessity for digital learning material design, learning goals, and student preferences and characteristics, were identified in the study [15]. Studies evidenced that the efficacy of e-learning as well as the reasons for certain e-learning students' dissatisfaction. Examining the efficiency of e-learning is beneficial not only to students, but also to educators, since it allows them to improve their teaching methods [22]. When it comes to online teaching, a teacher's position becomes more diversified; he or she must also be a content provider, subject matter expert, mentor as well as course designer too [23]. Students who were taught using a mixed mode of education, i.e. a combination of offline and online methods, performed much better in a study than students who were simply taught using traditional classrooms methods [24].

After using this mode for almost a year everyone understood how to manage network issues during classes, so network issues are not so frequent nowadays but yes there are problems in networks during classes may be due to everyone don't have the same network connections, bandwidth allocations. As per TRAI (Telecom Regulatory Authority of India) data median download speed as well as upload speed was declined more than their last 2 years median data. This drop was more or less for all telecom operators. Ookla, an internet speed testing company reported a 14% reduction in download speed in 2020. It was further improved to 9% in this year [25].

Absence of 1:1 interactions as well as direct eye-eye connection during lectures are affect educators too much because may be in offline days they can understood their students feeling while lecturing by reading their faces, Similarly, students believe that not being able to see their lecturers while listening to their lectures probably has a significant impact on their learning. In terms of efficiency, classroom instruction is virtually unrivalled. Face-to-face communications boost self-assurance. Group management, leadership, communication skills, character development, and total personality development are all induced by sports, physical, and co-curricular activities. Morning Prayer sessions in primary schools develop moral principles and a holistic approach that is completely lacking in the online education system [15].

No matter what disadvantages are there both educators and students have agreed that this system of learning will be the new future this may be because except this there was no choices left for them in this pandemic, may be because it had showing its popularity in outside of India. Due to sudden onset of this COVID-19 pandemic whole world's education system received a big blow. Schools/ Colleges/Universities and other government education institutes forced to close down and there

was a none other options left except E-learning. Learners and educators have to accept this shift no matter what circumstances they are facing [26]. After surging this COVID-19 pandemic E-learning and artificial intelligence principles are increasingly gaining popularity around the world [27] [5]. To create appropriate study materials for an online course, one will need precise lesson plans. Lack of online teaching abilities in educators, time-consuming online lesson plan preparation, lack of suitable technical assistance, and traffic overload in online educational platforms are some of the major obstacles of online education. Students, too, have difficulties as a result of their lack of a healthy learning attitude, a lack of appropriate learning resources, and more involvement in classroom learning, inability to self-discipline, and an inappropriate learning environment at some of their houses during self-isolation [28].

The pandemic had indisputably demonstrated the need for governments throughout the world to devote funds for effective educator training and the creation of novel learning domains that could give instruction to learners in the most efficient manner. This dilemma highlights the need of taking into account the demands of students. In the current pandemic crisis, education resources and pedagogical provisions should be heavily incorporated into all emergency curricula to keep educators and learners safe and mentally healthy [29].

Many nations throughout the world have received urgent assistance from the UNESCO webpage on COVID-19 to help them maintain learning continuity and prevent disruptions in education, especially for the benefit of the most important classes. (Under National Learning Platforms and tools by UNESCO 2020) [30].

6. Summary and Conclusion

E-learning appears to be the next big thing. It has been spreading widely. For everyone, the online learning approach is the ideal option. Many people opt to learn at a convenient time based on their availability and comfort. This allows the student to have access to the most up-to-date content whenever they desire. It provides pupils with a wide range of benefits. Based on the current and future prospects of E-learning, this study focuses on comparisons between educators and students, male and female students, male and female educators, and educators and students of various age groups. From the study it is observed that both educators and students are not completely satisfied with online education after using it for almost a year. There are certain limitations in the online education prospectus which can't be ignored. Both of educators and students want this online mode in conjunction with offline mode in near future. The modern educational system encourages the adoption of new technology in all fields. Technology is a crucial part of the curriculum at all levels for both developed and developing countries because they place a greater emphasis on research and development. India, for example, is eager to introduce more new web-based services, so that their Students can take those courses for integrate into the global work market. Nowadays learner's expectations from their educators are very different, to meet those expectations an educator have to progress a lot in technology; mostly the senior educators face this struggle too

much than others and also in developing country like India technology are not at all optimal in everyone's hand. In India not all students are at same socio-economic level so it is very problematic to provide same benefit to every student at a time.

Despite a few drawbacks, E-learning has proven to be a valuable resource for students and educators all over the world during this pandemic. The global financial crisis has highlighted the critical necessity of e-learning in today's environment, both educators and students have also agreed that only e-learning is may not be effective for long term run in higher educational purpose; there should a bridge between online and offline classrooms in near future. According to them e-learning probably can't replace the importance of offline lab based works mostly used in higher studies.

Acknowledgement

References

[1] R. Radha, K. Mahalakshmi, V. Sathish Kumar, A. R. Saravanakumar, "E-Learning during Lockdown of Covid-19 Pandemic: A Global Perspective", IJCA, vol. 13, no. 4, pp. 1088-1099, Jun. 2020.

[2] Chowdhury, M., Sarkar, A., Paul, & S.K. et. al., "A case study on strategies to deal with the impacts of COVID-19 pandemic in the food and beverage industry". Oper Manag Res. 2020.

[3] Nadikattu, R.R. "Information Technologies: Rebooting the World Activities during COVID-19", SSRN Electronic Journal, June 9, 2020.

[4] Noor-Ul-Amin, S. "An effective use of ICT for education and learning by drawing on worldwide knowledge, research and experience: ICT as a change agent for education". Scholarly Journal of Education, vol. 2, no. 4, pp. 38-54, 2013.

[5] Soni, V. D. "Challenges and Solution for Artificial Intelligence in Cyber security of the USA", SSRN Electronic Journal, 2020.

[6] Georgescu, Mircea "The Future of E-Learning: Designing Tomorrow's Education". 2006.

[7] Azzi-Huck, K. & Shmis, T. "Managing the impact of COVID-19 on education systems around the world: How countries are preparing, coping, and planning for recovery", International Journal of Research and Innovation in Social Science (IJRISS), Volume IV, Issue X, October 2020.

[8] Shahzad, A., Hassan, R., Abdullah, N. I., Hussain, A., & Fareed, M. "COVID-19 impact on e-commerce usage: An empirical evidence from Malaysian healthcare industry". Humanities & Social Sciences Reviews 8(3), pp. 599–609, 2020.

[9] Alvino, F., Di Vaio, A., Hassan, R., & Palladino, R. "Intellectual capital and sustainable development: A systematic literature review", Journal of Intellectual Capital, 2020.

[10] Di Vaio, A., Palladino, R., Hassan, R., Alvino, F.: "Human resources disclosure in the EU Directive 2014/95/ EU perspective: A systematic literature review", The Journal of Cleaner Production 257, 120509 2020b.

[11] Meyers, Lawrence S. "Performing Data Analysis Using IBM SPSS(R)". Hoboken, Wiley, 2013.

[12] McHugh, Mary L. "The Chi-Square Test of Independence", Biochemia Medica, pp.143–49, 2013.

[13] Anderson, J. IT, e-learning and teacher development. International Education Journal, 5(5), pp. 1-14, 2005.

[14] OECD, A framework to guide an education response to the COVID-19 Pandemic of 2020.

[15] Khatak, Sunita., & Naman, Wadhwa. "Online versus Offline Mode of Education -Is India Ready to Meet the Challenges of Online Education in Lockdown?", Journal of the Social Sciences, 48, 2020.

[16] Lissak G. (2018). "Adverse physiological and psychological effects of screen time on children and adolescents: Literature review and case study", Environmental Research, 2018.

[17] Owusu-Fordjour, C., Koomson, C., & Hanson, D., "The impact of covid-19 on learning - the perspective of the ghanaian student". European Journal of Education Studies. 2020.

[18] Colchester, K., Hagras, H., Alghazzawi, D.M., & Aldabbagh, G. "A Survey of Artificial Intelligence Techniques Employed for Adaptive Educational Systems within E-Learning Platforms". Journal of Artificial Intelligence and Soft Computing Research, 7, pp. 47-64, 2017.

[19] Li, Y., Wu, S., Yao, Q., & Zhu, Y. (2013). "Research on college students' online learning behavior", e-Education Research, 34(11), pp. 59–65. 2013.

[20] Bajaj, R.V., & Sharma, V. "Smart Education with artificial intelligence based determination of learning styles". Procedia Computer Science, 132, pp. 834-842. 2018.

[21] Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. "The psychological impact of the COVID-19 epidemic on college students in China". J. Psychiatry Res. 287, 112934, 2020.

[22] Liaw, S. S. "Investigating students' perceived satisfaction, behavioral intention, and effectiveness of e-learning: A case study of the Blackboard system". Computers & education, 51(2), pp. 864-873, 2008.

[23] Martin, F., Budhrani, K., Kumar, S., & Ritzhaupt, "A. Award-winning faculty online teaching practices: Roles and competencies". Online Learning, 23(1), pp. 184-205, 2019.

[24] Setyawan, Harits. "Blended Method: Online-Offline Teaching and Learning, On Students' Reading Achievement". English Education: Jurnal Tadris Bahasa Inggris. 12. pp. 22-33, 2019.

[25] Kawoosa Mohammad Vijdan. Hindustan Times: Internet speeds fall to lowest in 2 years, 2020.

[26] Mnyanyi, C. B. F., & Mbwette, T. S. A. "Open and Distance Learning in Developing Countries: The Past, The Present and The Future", Open University of Tanzania: Dares salaam, 2009.

[27] Misko, J., Choi, J., Hong, S., & Lee, I. E-learning in Australia and Korea: Learning from practice, Korea Research Institute for Vocational Education and Training, Seoul, NCVER, Adelaide, 2004.

[28] Brazendale, K., Beets, M.W., & Weaver, R.G. et al. "Understanding differences between summer vs. school obesogenic behaviors of children: the structured days hypothesis". Int J Behav Nutr Phys Act 14, 100. 2017.

[29] Pragholapati, A. COVID-19 impact on students. 2020.

[30] UNESCO. A framework to guide an education response to the COVID-19 Pandemic of 2020.

Appendix

Description of Questions:

- Q1. Preferred teaching/ learning mode (i) Online (ii) Offline (iii) Both
- Q2. Your feedback regarding the shift from offline to online mode of education (i) Very bad (ii) Moderate (iii) Very good
- Q3. How often you use videos such as YouTube videos (or any other videos) as a part of your lecture/study? (i) Never (ii) Sometimes (iii) Very Often
- Q4. How much improvement have you seen in the facilities offered by online education platforms during this pandemic? (i) Not at all (ii) Very few (iii) Too many
- Q5. How helpful was your institution (School/College/ University) in offering resources for education online? (i) Not at all (ii) Very few (iii) Too many
- Q6. According to you, how far has your institute developed online education infrastructure from the beginning of the pandemic till now? (i) Not at all (ii)

Moderate (iii) Developed a lot

- Q7. Which one of the following methods of studying do you think is most effective? (i) Book study (ii) Video lecture along with e-books and study materials (iii) Both
- Q8. How peaceful is the environment at home while teaching/ learning online? (i) Not peaceful at all (ii) Quite peaceful (iii) totally peaceful
- Q9. How well could you maintain a work-life balance while teaching/learning online? (i) Not at all (ii) Moderate (iii) More than before
- Q10. As an e-learning user, how much mental stress are you experiencing during the pandemic as compared to the pre-covid era? (i) No stress at all (ii) Moderate stress (iii) Too much stress
- Q11. After using this online mode for almost a year how do you feel about this mode of education? (i) Not liked at all (ii) Quite good (iii) Too good
- Q12. In your opinion as an e-learning user, will "E-Learning" be the new reality in the near future? (i) Not at all (ii) To quite an extent (iii) Definitely
- Q13. When everything will be normal like before how far do you think this online mode should be retained (i) Definitely not (ii) Moderately (iii) Totally
- Q14. How often do you have a 1:1 discussion with your student/educator? (i) Never (ii) Sometimes (iii) Very often
- Q15. How frequently do you face network issues during classes? (i) Never (ii) Sometimes (iii) Very often
- Q16. During online classes, absence of eye-to-eye communication with your students/educators bothers you to what extent? (i) Not at all bothering (ii) Little Bothering (iii) Extremely bothering