ONLINE TEACHING-LEARNING PROCESS:
A NEW HORIZON IN INDIAN EDUCATION HISTORY

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ABSTRACT

India has a great legacy in the field of education since dawn of the civilization which is experiencing an unexpected paradigm shift in 2020 due to the outbreak of novel corona virus. To keep the education system operating entire global teacher-student community including India bound shift into the virtual platform. In the virtual mode the teachers-students face-to-face interaction is missing, so, it is very difficult for the teachers to communicate with the learning understanding their requirements. But this mode brings certain good thing also like easy access to the global education chain for enriching our knowledge. In India where majority of the students suffer from financial as well as accessibility crisis without the aid of the government, it will be like a unicorn that students get benefitted out of this mode. The study attempts to understand the feeling of both teachers and students about the virtual mode. Factor analysis and correlation method have applied to attain the objectives. A pan India survey was conducted regarding this for data collection purpose. Through factor analysis technique four factors are identified which have major influence on the online teaching learning process. It was revealed that due to the dearth of infrastructural assistance among the students and pressures from the family incidence of dropouts hiked. At the end of the day, we can say a proper blend of offline and online lecture delivery will serve a better quality of education in front of our new generations.

Keywords: *Teachers, Students, Online Education, Factor Analysis, Efficiency.*
JEL Codes: *C38, H75, H21.*

Introduction

Since ancient time India is known for its extraordinary contributions towards the field of education, culture, arts, science and so on. Numerous pundits, educationists have been enlightening the Indian civilizations in different ages, even in the modern days also. Since the Vedic time, there was a sound relationship between the teachers and the students. This relationship is the core of catering education among the students. But this relationship is on the verge of ending due to the outbreak of Novel Corona virus in 2020. Educational institutions are closed for almost 6 months. During this period of time education has been shifted to the online platform. In the online platforms like Google meet, Zoom Webex, MS Teams etc teachers are giving their lectures, but how much it is listened to and captured by the student remains unchecked. The involvement of the students is totally lacking. All parts of India are not well connected with the internet. As per National Sample Survey 2017-18, only 4.4% and 14.9% households in rural areas are equipped with computer facilities and internet connectivity respectively. But the percentage of households with computer facilities and internet connectivity in the urban areas is also not very satisfactory; it is only 23.4% and 42% respectively. Schools and colleges not only just provide education but also play a crucial role in building and nurturing the mental health of the students. In schools and colleges, other than academic activities, students get the opportunities to perform certain extracurricular activities like sports, cultural events, quiz, debates, etc. which can refresh their minds and boost up their personalities. In case of e-learning, the biggest challenges are the network issues,

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surrounding noises for both the teachers and the students, etc. Unlike the traditional format, teachers are unable to monitor the students, unable to interpret the body languages of the students, which may also sometimes hamper the teaching-learning process. The students are sometimes emotionally attached with the teachers where they not only discuss subject matters but also share some personal problems with teachers; seek guidance from the teachers regarding their career and future plans. However, this is somewhat missing in case of e-learning. Mostly in rural areas, as educational institutions are closed, sometimes parents are involving their children in their own work or own business which may lead to the increase in the number of school or college dropouts. And as the number dropout increases, the illiteracy level also goes up, dampening the overall development of the country. Though E-learning is the need of the hour, still, it may not be a total replacement of the traditional system of education in India. Undoubtedly there are lots of challenges in e-learning in the Indian context, but it needs to be worked upon and sorted, so that these challenges may be overcome in the near future.

Literature Review

The customary educational conveyance framework in colleges and universities has for a moderately significant stretch of time been a classroom with a teacher delivering lectures to learners and the learners tuning in and some of the time taking notes. Correspondence between the teacher and learners has been considered to be an imperative learning part in this conveyance technique. Advancements in instructive conveyance components, for example, intelligent and intelligent ways of thinking have, in any case, provoked the conventional ways to deal with schooling (Janicki, T., Steinberg, G., 2003). Progress in data innovation has empowered new instructive conveyance techniques, for example, distance learning and e-Learning. Thus, numerous colleges and schools have joined this imaginative e-Learning world. This has prompted the requirement for instructive and specialized information to show utilizing the Internet, and this information is slowly turning into a center ability for some educators just as learners. Given the engendering of electronic upheld educating, the essential inquiry here is that how and how much e-Learning is changing the nature of instructing and learning.

There are questions regarding how far online teaching can benefit the less proficient students who are most in need of skilled classroom teachers. Physical proximity and face-to-face interaction can bring out the best in students and kindle their imagination. Engaging all the students and encouraging them to be active online is a 'Herculean' task. Although online classes are flexible and students can manage their learning time efficiently in online mode, but the real challenge is how to bring the teacher's personality into the virtual classroom. The generation of high-quality e-content requires proper coordination between subject matter experts and technical experts (Rath & Goel, 2011)

There are questions with respect to how far web-based instructing can profit the less capable learners who are most needing talented study hall educators. Actual closeness and vis-à-vis cooperation can draw out the best in learners and fuel their creative mind. Connecting all the learners and urging them to be dynamic online is a 'Huge' task. Albeit online classes are adaptable and learners can deal with their learning time productively in online mode, yet the genuine test is the means by which to carry the educator's character into the virtual homeroom. The age of excellent e-content requires legitimate coordination between topic specialists and specialized specialists (Rath and Goel, 2011)

Various examinations have been led to comprehend the internet learning experience of students tried out different kinds of courses across the globe at various purposes of time. Youthful and Norgard (2006) found that "building up a hearty online network with understudy association, convenient communication among students and teachers, and specialized help is basic to fulfillment with online courses."Peer-connections are basic in creating web-based learning networks and altogether influence students' internet learning encounters" (McGreal and Elliott, 2004; Palloff& Pratt; 1999). The specialized aptitude of the educator is a basic factor in internet instructing and learning (Armstrong, 2011).Also, "there is an issue of low-level readiness among the students concerning the utilization of Learning Management Systems" (Parkes et al., 2014). Additionally, the high inspiration of the students is expected to finish an online course (Dennis, Bunkowski, and Eskey, 2007). Absence of individual touch and cooperation because of network issues are the critical disadvantages of virtual classes (Arora and Srinivasan, 2020)."Sometimes, online substance is all hypothetical and doesn't allow students to rehearse and adapt viably. Unremarkable course content is likewise a significant issue" (Dhawan, 2020). The investigation of Muthuprasad et al. (2020) shows that" students lean toward recorded classes with tests toward the finish of each class to improve the viability of learning." The adaptability and comfort of online courses make it an appealing choice. Interestingly, broadband availability issues in country regions make it a test for students to utilize web-based learning activities.

In west Bengal students emphasize more on traditional form of teaching learning process instead of the online teaching system due to their poor financial conditions and lack of technology. The government should take proper initiatives to equip the educational institutions as well as the learning community by giving the necessary infrastructures, financial assistance etc. (Dr. Rupam Mukherjee et al, 2020). E-learning opens up the entire world in front of the students and they can grab the knowledge according to their convenience that in turn enrich our young generations (R. Radha et al, 2020). In Malaysian Universities, E-learning portals are differently used by the male and female learners. (Arfan Shahzad et al, 2020)

Research Gap

From above writing it is discovered that the greater part of the investigations is directed external India. Just two examinations have a place with India yet that additionally kept to a specific region. No study is found that deals with the pan India data.The examinations predominantly centered around how the online studies can be better and available to the students' door steps. Not many observational examinations have been directed at this point regarding an econometric model to feature the perceptions of the teachers and students towards the support in online classes during this emergency time. Moreover, these surveys faced the challenges of small sample size. In this paper we try to address this rift.
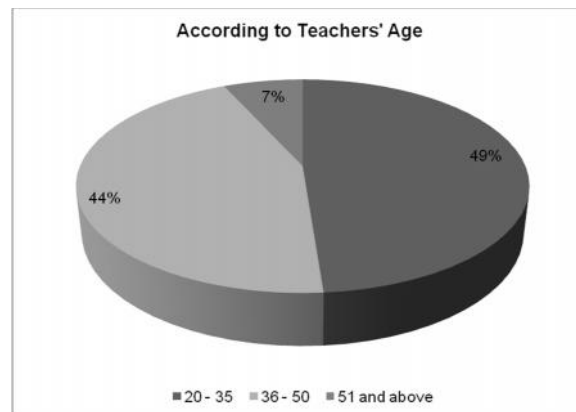
Objectives

- To identify the factors contributing towards perception of the teacher and students regarding online teaching-learning process all over India.
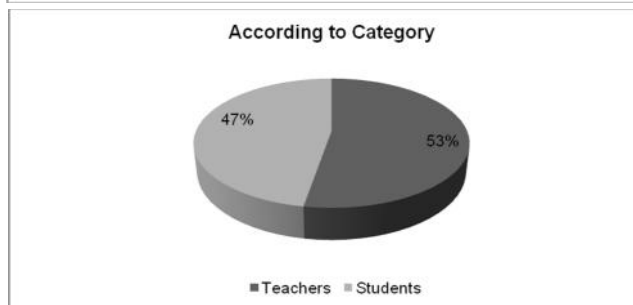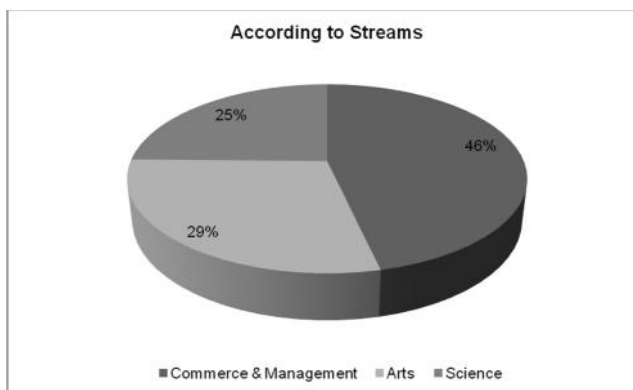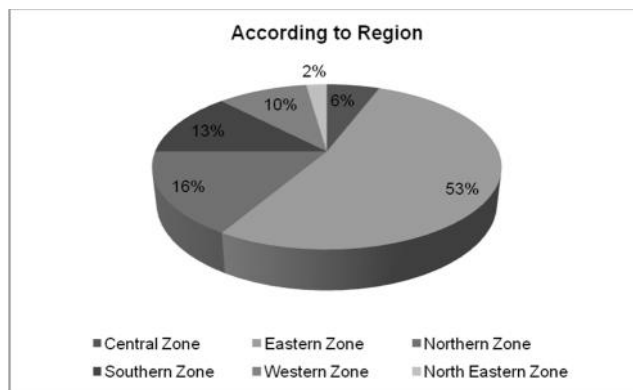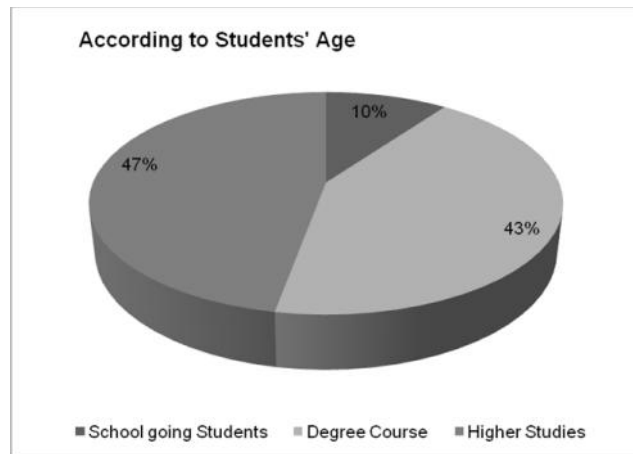- Correlation between students' less involvement in process and dearth of necessary facilities.

Data & Research Methodology

The present study is empirical and exploratory in nature. Exploratory research helps to further study the problem in detail and it provides a base for quantitative research. This study is based on primary data. The primary data have been sourced by administering a structured questionnaire among 1,000 teachers and students of different parts of India through Google Form. The survey was undertaken during the period from July 2020 to December 2020 in all over India. The data regarding the perception of online teaching and learning was collected from 700 faculty members and students from school, colleges and universities of different streams through interviews and Google forms by a pretested semi-structured questionnaire designed for the purpose. A multistage random sample design was used to collect the data. The research fell into the category of qualitative. It was concentrated on understanding the perceptions of the teachers and students regarding online teaching through factor analysis.

The demographic profile of the respondents is presented in Figure 1. As per as the age of the teachers and students are concerned 49% teachers lie in the 20 – 35 age range followed by the 44% lie in the 36 – 50 age brackets. Similarly, 47% student respondents are pursuing higher studies. About 53% respondents reside in eastern part of India (i.e. Bihar, Jharkhand, Odisha and West Bengal), 16% lives in northern part, 13% lives in southern part, 10% lives in western part, 6% lives in central part and 2% in north-eastern part of India.If one considers the stream of study of the respondents, then 46% read in Commerce & Management stream., whereas 29% and 25% of them read in Arts and Science stream respectively. Among the respondents 53% belongs to teaching community and 47% from the students group.

Figure 1: Demographic Profile of the Respondents

According to Students' Age

- School going Students
- Degree Course
- Higher Studies

According to Region

- Central Zone
- Eastern Zone
- Northern Zone
- Southern Zone
- Western Zone
- North Eastern Zone

According to Streams

- Commerce & Management
- Arts
- Science

According to Category

- Teachers
- Students

Sources: Own Survey (July – December, 2020)

The analysis of the data entails the use of various tools like KMO &Bartlett's test of Sphericity, Factor Analysis, Reliability test; Descriptive statistics and few other tools were used for the analysis and objective of the study. The findings of the study are represented below with an explanation of each test and its corresponding value.

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.941
Bartlett's Test of Sphericity	Approx. Chi-Square	5371.693
	df	91
	Sig.	.000

Source: Researcher's calculation based on survey data

Bartlett's Test of Sphericity is used to test the *null hypothesis* that the variables are uncorrelated in the population. In present study, the chi square value was 5371.693 with 91 degree of freedom. Thus, it is considered statistically significant as $p < 0.05$. A large value of the test statistic in the **Table 1** above leads to rejection of the *null hypothesis* and it is concluded that applying *Factor Analysis* is appropriate. Furthermore, a high magnitude of the KMO measure of sampling adequacy suggests the appropriateness of *Factor Analysis*.

Interpretation of Output of Factor Analysis

The output of Factor Analysis is obtained by applying the Principal Component Analysis. In the Table 2 and 3 the output of the Factor Analysis with respect to the questions asked to the respondents. The Total Variance has been explained in the Table 2 and the Rotated Component Matrix in the Table 3.To identify the number of underlying dimensions, a range of approaches exist. In present study Principal Component Analysis (PCA) method has been used.

A total of 14 elements from factor analysis resulted in four factors. The Total Variance Explained table shows the variance explained by four factors solution. From table 2, it can be observed that the 4 factors grouping explained approximately 71.583 percent of the variance. From Table 3 it is observed that all the factor loadings were more than 0.5, (only one factor was below 0.5 value) that shows moderate to high correlation among them.

Table 2: Total Variance Explained

Component	Initial Eigen Values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.963	49.738	49.738	6.963	49.738	49.738	3.190	22.782	22.782
2	1.687	12.053	61.791	1.687	12.053	61.791	2.957	21.119	43.901
3	.798	5.703	67.494	.798	5.703	67.494	2.119	15.134	59.036
4	.610	4.359	71.853	.610	4.359	71.853	1.794	12.817	71.853
5	.545	3.893	75.746						
6	.495	3.536	79.282						
7	.434	3.101	82.383						
8	.421	3.009	85.391						
9	.385	2.751	88.142						
10	.374	2.672	90.814						
11	.341	2.434	93.248						
12	.330	2.356	95.605						
13	.318	2.268	97.873						
14	.298	2.127	100.00						

Extraction Method: Principal Component Analysis.
Source: Researcher's calculation based on survey data

Table 3: Rotated Component Matrix (a)

	Component			
	1	2	3	4
The e-learning may be the proper replacement for the traditional system of education in India	.747	.119	.186	.253
E-learning may hamper the teacher-student relationship	.161	.610	.523	.032
Under e-learning the teachers would be able to teach effectively	.785	.113	.167	.216
The age of the teachers may affect the efficiency in the online teaching process.	.268	.227	.792	.098
The age and maturity of the students will affect the effectiveness of the learning process	.160	.303	.706	.377

Under the online teaching system students are really attaining the lectures sincerely	.812	.133	.243	.003
Dearth of necessary facilities of accessibility to resources among the students may distort the concept of equity and equal opportunity	.236	.380	.490	.496
E-learning may lead to increase in drop outs	.262	.644	.434	.067
E-learning may be applied all line of studies	.775	.210	.059	.202
The online system will provide the teachers with more time for their own research work and their academic upliftment	.493	.298	.088	.586
E-learning will hamper the extracurricular activities and personality development	.084	.800	.201	.262
Online learning process may affect the recruitment process efficiently	.292	.767	.128	.219
The online mode of education will become a part and parcel of the education system in the long run	.411	.222	.232	.699
Times spent more on electronic devices may cause both physical and psychological problems	.066	.653	.218	.539

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 7 iterations.
Source: Researcher's calculation based on survey data

Descriptive Statistics reveals the Mean value of the 4 Factors. In the table below, mean values of Factor 2, Factor 3& Factor 4are closer to each other so we calculate Std. Deviation also. and from the analysis the factor 2 which has low Std. Deviation has more influence. So, Level of Influence of Factor 2 is higher than the other 3 factors.

Table 4: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
FAC_1	700	1.00	5.00	3.2129	1.18770
FAC_2	700	1.00	5.00	2.7234	1.16686
FAC_3	700	1.00	5.00	2.8779	1.32155
FAC_4	700	1.00	5.00	2.7466	1.17064
Valid N (listwise)	700				

Source: Researcher's calculation based on survey data

Now reliability analysis is done for that Cronbach's alpha is used, the value of Cronbach's alpha is 0.922, a score of 0.60 is acceptable for research.It signifies that the questionnaire design is internally consistent and thus can be used for further research with reliability.Statistical software's generate the Rotated Component Matrix which shows which variables clump together. Now the factors were labeled and interpreted as follows:

Table 5: Reliability Statistics

Cronbach's Alpha	N of Items
.922	14

Source: Researcher's calculation based on survey data

Factor 1: Proper application of virtual platform

The first factor was named as *Proper application of virtual platform*. It alone explained approx. half (49.738%) of the total variance. The factor includes issues related with substitutability of virtual platform against traditional form of delivering education during pandemic. It covers a wide range of issues as application of virtual platform in all streams including the practical subjects like engineering, biology etc, Sincereness among student regarding virtual classroom, Proper substitute of traditional system and Comfortable teaching from teachers' point of view.

Factor 2: Lack of involvement

The second factor was named as *Lack of involvement*. It explains 12.053% of the total variance. The factor includes Hampering Teacher Student relationship, participation in extracurricular activities, high incidence of drop outs, distortion in recruitment process and health hazards.

Factor 3: Adaptability with the New Platform

The third factor was named as *Adaptability with the new platform*. It explains 5.703% of the total variance. The factor includes age of the teacher and students to adapt and easily fit in the changed teaching-learning process.

Factor 4: Convenience

The third factor was named as *Convenience*. It explains 4.359% of the total variance. The factor includes dearth of infrastructure to the learner, better opportunities for career upliftment for the faculties and inevitability of the virtual platform.

Table 6: Correlation Matrix

			Dearth of necessary facilities for attaining online Classes	Lack of Sincerity	Increase in drop outs
Spearman's rho	Dearth of necessary facilities for attaining online Classes	Correlation Coefficient	1	.413(**)	.573(**)
		Sig. (2-tailed)	.	0	0
		N	703	700	700
	Lack of Sincerity	Correlation Coefficient	.413(**)	1	.374(**)
		Sig. (2-tailed)	0	.	0
		N	700	700	700
	Increase in drop outs	Correlation Coefficient	.573(**)	.374(**)	1
		Sig. (2-tailed)	0	0	.
		N	700	700	700

** Correlation is significant at the 0.01 level (2-tailed).

Although teaching-learning process shifted to virtual mode, but the students could not fit themselves into that mode instantly. Students found it difficult to buy and install the technology due to several reasons like accessibility to those technology, financial condition of their families etc. Many students were not able to attend the classes even after 2-3 months of online classes. Due to lack of necessary facilities, they lost interest in this type of teaching and even if they somehow managed to join the classes, they did not show much interest in the class discussions. Many students just joined the classes through the link and then they got engaged into different other activities. Ultimately, it resulted into an increase in the incidence of dropouts. Many parents lost their jobs during this pandemic and in order to earn their livelihood ventured into new types of small businesses like putting up of road side vegetable shops in their locality, moving with mobile vegetable shops from one place to another, etc. They even involved their children into such businesses, and in turn that detached them from studies. In the rural areas, many students were sent to school only because of mid-day meal, but that was also stopped during the strict nationwide lockdown period. From the above table it was confirmed that lack of infrastructure in the hands of students had relatively high correlation (57.3%) with the dropout incidence as compared to sincerity issues (37.4%). The result is significant at 1% level of significance.

Conclusion

This paper puts light on some essential issues regarding online teaching-learning process. We have identified four factors (*Proper application of virtual platform, Lack of involvement, Adaptability with the new platform and Convenience)* which have influence on the success of online teaching-learning process. Among these four factors, lack of involvement has more influence on the online teaching-learning system. Lack of infrastructure forced the students to discontinue their studies. So, government should take proper initiatives such that online education facilities reach to the student's door step. Finally, we may conclude that educational environment in India is changing from its traditional format, and the virtual mode of education is becoming a part and parcel of the education system. Like every coin has its two sides, online mode of teaching-learning also has its own set of advantages as well as disadvantages. Some of the teaching faculties are more comfortable with online mode of education while some faculties are facing immense difficulty in taking online classes. All the students are not getting equally benefitted from the online teaching-learning process and as long as this issue remains unaddressed Until and unless, the ultimate success of the system will just remain as an unrealized dream. At the end of the day, we can say that a proper blend of offline and online lecture delivery will serve a better quality of education in front of our new generations.

References

~ Armstrong, A. D. (2011), "Students' Perception of Online Learning Instructional Tools: AQualitative Study of Undergraduate Students use of Online Tools", TOJET: The Turkish OnlineJournal of Educational Technology, Volume 10, Issue 3

~ Arora, A., Srinivasan, R.,(2020), "Impact of Pandemic COVID-19 on the Teaching-LearningProcess: A study of Higher Education Teachers", Prabandhan India Journal of Management,13(4), 43

~ Census of India 2011

~   Dennis, K., Bunkowski, L., &Eskey, M. (2007), "The little engine that could – How to start the motor? Motivating the Online Student", Insight: A Journal of Scholarly Teaching

~   Dhawan, B., (2020), "COVID-19: How smart classrooms are transforming India's education system", Financial Express, May 5

~   Kirtman, L. (2009), "Online versus in-class courses: An examination of differences in learningoutcomes", Issues in Teacher Education, 18(2), 103-116

~   LaPointe, L., & Reisetter, M. (2008),"Belonging online: Students' perceptions of the value andefficacy of an online learning community'" International Journal on E-Learning, 7(4), 641-665.

~   Legutko, R. S. (2007),"Face-to-face or cyberspace: Analysis of course delivery in a graduate educational research course", MERLOT Journal of Online Learning and Teaching, 3(3), 288-294.

~   McGreal, R., & Elliott, M. (2004), "Technologies of online learning (e-learning)", in T. Anderson &F. Elloumi (Eds.), Theory and practice of online learning (pp. 115-135). Athabasca, Canada:Athabasca University Press

~   Mukherjee, Dr.Rupam, Mandal, Krishnendu and Dey, Arpita, (2020) "a study on the factors affecting students' perception and attendance of online college classes during the 'corona' pandemic in selected districts of West Bengal", International Journal of Advanced Research in Commerce, Management & Social Science (IJARCMSS), ISSN: 2581-7930, Volume 03, No. 03, July - September, 2020, pp 114-122

~   Muthuprasad, T., Aiswarya, S., Aditya, K.S., Jha, G.K., (Posted 12 May, 2020, publication status: under Review), "Students' Perception and Preference for Online Education in India DuringCOVID-19 Pandemic", Social Science and Humanities Open

~   National Sample Survey, Annual Report 2017-18

~   Neuhauser, C. (2002),"Learning style and effectiveness of online and face-to-face instruction",The American Journal of Distance Education, 16(2), 99-113.

~   Palloff, R. M., & Pratt, K. (1999),"Building learning communities in cyberspace", San Francisco,CA: Jossey-Bass. MERLOT Journal of Online Learning and Teaching Vol. 9, No. 1

~   Parkes, M & Fletcher, P.R.(2014), "Talking the Talk: Audio Feedback as a Tool for Student Assessment'" World Conference on Educational Multimedia, Hypermedia andTelecommunications, 1606-165

~   Radha, R., Mahalakshmi, K., Dr, V Satish Kumar and Dr. AR Saravana kumar (2020), "E-learning during Lockdown of Covid-19 Pandemic: A Global Perspective", International Journal of Control and Automation vol.13, No. 4, pp. 1088 – 1099.

~   Rath,V.& Goel, A. (2011), "Amethodology for e-quiz content production for e-learning", Second International Conference on Emerging Applications of Information Technology, 145-148, 19-20February

~   Shahzad, Arfan, Hassan, Rohali, Aremu, Yusuff Adejare, Hussain, Arsalan and Lodhi, Rab Nawaz (2020), "Effects of COVID – 19 in the E-learning on higher education institution students: the group comparison between male and female", Springer Nature B.V. 2020, https://doi.org/10.1007/s11135-020-01028-z

~   Swan, K., Shea, P., Fredericksen, E., Pickett, A., Pelz, W., & Maher, G. (2000),"Building knowledge building communities: Consistency, contact and communication in the virtual classroom", Journal of Educational Computing Research, 23(4), 359-383

~   Varghese, N.V., Pachauri, A.Mandal, S.(2018) (ed.), India Higher Education Report 2017-Teaching, Learning and Quality in Higher Education, Sage Publications India Pvt Ltd.

~   Yang, Y., & Durrington, V. (2010),"Investigation of students' perceptions of online course quality", International Journal on E-Learning, 9(3), 341-361

~   Young, A., & Norgard, C. (2006), "Assessing the quality of online courses from the students' perspective", The Internet and Higher Education, 9(2), 107-115.

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