Research Article

Perception and Preference of School Student's towards E-Classrooms in India during COVID-19 pandemic

Pratibha Barik
Asst. Professor, Kushabhau Thakre Journalism and Mass Communication University, Raipur (C.G.)
E-mail Id: pratibha.barik@gmail.com & f19pratibhab@iima.ac.in

Abstract

After the outbreak of Corona, India's traditional education structure was completely shifted to E-classrooms. Many educational institutions, however, welcomed this new technology development without first examining the availability, price, accessibility, and acceptability of virtual learning among young, developing students. The purpose of the research was to focus on the perception and preference of E-learning of Indian school students from class V to XII with the help of an online survey of 816 respondents. The attempt was made to uncover the concrete issues of online classes faced by the school students and further suggestions on how to best utilize this integrated approach in the school education system in near future. Thus, the study addresses the student's perspective towards virtual classes and their expectation and experience to further improve the online education system. The study revealed that students are well equipped with the devices as well as technical knowledge and have good internet connectivity. The students opined that online classes are not effective as it requires self-motivation as well as a lack of direct interaction with the teachers and fellow-mates. However, they appreciated the convenience of E-classrooms, and many felt alienated as a result of their isolation, whereas sitting in front of a computer makes them feel drowsy, and many complained of eye problems. But in the school education system full model of virtual learning may not be possible, but a blended approach can be practiced.

Key words: Online Classrooms, E-learning, E-classrooms, virtual classrooms, COVID-19

Introduction

COVID-19, a novel coronavirus disease shattered the world and countries were enforced to impose the closures of educational institutions. The Indian education system also transformed from traditional classrooms to E-classrooms soon after the first lockdown which was imposed in India on 25th March 2020 and more than 320 million students were affected due to the closure of the school and higher education (According to UNESCO 2020). This brought a challenge for the educationalist think-tankers, how to continue the learning with traditional teaching methods as lockdown and social distancing was the only ways to slow down the spread of coronavirus. The burden to complete the syllabi within the stipulated academic calendar time frame was a big challenge for them. According to John Dewey, American philosopher, psychologist, and educational reformer, strongly argued that good education must lead the child's current interests and abilities organically to logically organized human knowledge.

This pandemic has utterly disrupted and raised a question on the Indian education system, that's why our education system in this digital era is

lagging. Though, E-learning is now being heralded as the key to transforming the education sector, in a country like India benefits of virtual classrooms accrue to those for whom the technology is affordable, accessible and adaptable. The study is relevant as school children aged 11 to 18 years old usually use mobile solely to play games or to chat on social media, but today they must sit and study with this device. This unprecedented implementation of the online mode in the education system caught everyone off guard, so in this context, the experience of the students can be helpful to incorporate the E-classrooms in a more convenient and productive way.

Further, the adaptation of E-learning among students and teachers teaching with this new pedagogy is appreciable. This flourishing technology and innovative change have initiated challenges in the education system with a new learning for both students and teachers. Hence, the results of the study can be significant inputs on deciding various attributes necessary for the adaptation of a blended education system approach. In the next section, a brief review of literature is provided, preceded by a research methodology section and then discussion on results and implications of the study with concluding remarks.

Objectives of the Study

1. To explore the attitude and perceptions of school children who have adopted E-classes during Covid-19 pandemic.
2. To identify the factors for improving academic performance by adopting E-classes.
3. To identify the future prospect of E-learning in the school education system.

Review of Literature

The technological advancement in the current education system has forced educators to think about ways to design online content. For the designing of online course content, preference and perceptions of learners are necessary to be considered for an effective and efficient learning process. Preference refers to the willingness of the students to adopt the blended learning approach and factors influencing the E-classrooms. During this difficult period, the main worry is not whether online teaching-learning methods can provide high-quality education, but rather how academic institutions will be able to implement online learning on such a large scale. (Carey, 2020).

The concept of readiness for online learning was proposed by Warner et. al. 1998. Readiness of VET clients for flexible delivery including online learning (Brisbane: Australian National Training Authority.) in Australian vocational education and training sectors, describing three main aspects: preference of the students for online learning, students' self-confidence with their technological competency and trust in internet and capability to engage in self-directed learning. The concept was further researched by many researchers, Smith et al.2003 revealed two preferred factors "comfort with e-learning" and "self-management of learning" are the preferred factors in E-learning. Singh & Thurman, 2019 defines online learning as learning experiences in synchronous or asynchronous environments using different devices (e.g., mobile phones, laptops, etc.) with internet access. In these environments, students can be anywhere (independent) to learn and interact with instructors and other students". According to Lin and Hsieh (2001); McVay (2001), online learning requires self-directed motivation and learner's control by Reeves (1993) and

online communication self-efficacy by Roper (2007). Further Basilaia et al., 2020 highlighted that E-classrooms can be successful when there are basic arrangements like, a video conferencing with at least 40 to 50 students can join, good internet connections, lectures accessible on mobile phones also, discussions with students can be done, pre-recorded lectures facility so that students can watch those videos later and instant feedback from students can be achieved and assignments can be taken.

Previous researchers have documented the favourable and unfavourable perceptions of the students towards online learning mode. Apart from favourable conditions, some researchers revealed that students in an online course lack social group formation in an E-learning environment by Song et.al (2004). As Gunawardena revealed that social presence is a must to maintain the flair in the education system, if the social presence is low the interaction in learning is also low. Other than this, social interaction is even essential for successful learning as it promotes learning engagement (Carini R, Kuh G, and Klein, 2006). Several studies indicated that students-teachers interaction have a significant impact on the students' perception of virtual classes.

Various drawbacks were also described by the previous researchers, lack of a sense of community and/or feelings of isolation by Vonderwell (2003); Lin and Zane (2005); sometimes technical problems persist by Piccoli et al. (2001); Song et al. (2004), delay in responses by Petrides (2002); Vonderwell (2003), problems in collaborating with the co-learners, Piccoli et al. (2001); Song et al. (2004). Further, the weakness of online learning, according to Golladay et al. (2000) and Serwatka (2003) are E-classrooms that require greater discipline, self-motivation and writing skills as well as self-directed time management.

Many educational institutes are implementing E-learning as an important method in the modern education era due to its flexibility, ease of use, low cost and to overcome the problem of shortage of faculty members (Linjawi and Alfadda 2018).

Further, many studies have been conducted to acknowledge the students' perception towards E-learning and according to many students loved E-learning, but many gave preference to traditional methods. Popovinci and Mironov (2015) suggested that acceptance of new technology depends upon its needs and demands, hence E-learning can be acceptable when students find it helpful and fruitful for their studies, whereas lack of information technology skill and internet connectivity can prompt negative perception towards e-learning (Silviyanti T M and Yusuf Y Q 2015). Many studies have also supported the fact that online class will be as effective as a traditional class if it is designed appropriately (Nguyen, 2015). But very few attempts have been made to understand the perception of school students regarding online classes. Further, attempts have not been done in this line of school students as traditional teaching is always preferred, so the researcher will try to fill the gap by focusing on the perception of school students towards online learning methodology.

Data and methods

Participants

5 English Medium schools were randomly selected from Raipur City, Chhattisgarh and a total sample size of 1000 was selected for the study. Initially, the key informants from these 5 schools were identified for an online survey. The link for the Google form

was sent to the key informants through WhatsApp and E-mail. After submitting their responses, they circulated the questionnaire among other students like snowball sampling.

Based on equal ratio proportionate random sampling, from each school, 200 students were randomly selected for the study. Total 1000 questionnaires were e-mailed to the students among which 816 participants responded that the relevant rest were rejected from the study. It includes 108 from Vth –VIth, 156 from VIIth-VIIIth, 312 from IXth-Xth and 240 from XIth-XIIth. Among them 553 male and 263 female

Procedures

Initially, the key respondents were identified from various English medium private schools where the online classes were implemented full-fledged for the online survey. A structured preliminary questionnaire was designed with the help of a literature review and further inputs were taken from discussions with the students. A pilot survey was done with 43 students and feedback was considered for the final questionnaire design the questionnaire was prepared in Google form to be sent through E-mail and WhatsApp to the students or on their parent's mobile/E-mail address. The final electronic survey was conducted from August 2020 and closed in November 2020.

Data Analysis

The data were collected from the school student's, attending regular online classes and further, the study was followed with the learner's perception, preference, availability, constraints, disadvantages, and valuable suggestions. The electronic survey was a researcher generated instrument, blended with a quantitative questionnaire consisting of 29 items on a 5-likert scale and few demographic questions. The data was gathered about: Technological competencies and the internet (6 items), Attitude towards Online classrooms (7 items), flexibility and convenience (5 items), inter-relationship with teachers and fellow-mates (5 items) and health problems (6 items).

The electronic pilot survey was conducted on a small sample of students and minor corrections were done based on the respondent's feedback. The reliability of the questionnaire was tested through Cronbach Alpha correlation test (See Table.1).

Table-1: Cronbach Alpha Test

S. No.	Items	Cronbach's Alpha
1	Technical knowledge and Internet Connectivity	.879
2	Online Classrooms	.767
3	Inter-relationship	.709
4	Flexible and Convenience	.765
5	Health Issues	.890

The perception of the students was summarized and analysed by the measure attitudes developed in 1932 by Rensis Likert, the typical Likert scale of 5-point ordinal scale used by respondents to rate the degree to which they agree or disagree with a Statement. The Likert 5-point scale is considered

an interval scale. The mean is very significant. From 1 to 1.80 it means strongly disagree, 1.81 to 2.60 means Disagree, 2.61 to 3.40 means Neutral, 3.41 to 4.20 means Agree and 4.21 to 5 mean Strongly Agree.
For data analysis, frequency, percentage, mean and standard deviation were calculated to summarize the data.

Results

Findings from the analysis of quantitative data gathered from the present study are presented below:

Basic information regarding Online classes

Due to the COVID-19 pandemic the closure of the schools and colleges compel the students for adapt of E-learning, though 21 percent of students suggested the suspension of classes and 5 percent of reading material and assignments should be provided to them. Hence, this probes into the matter to analyze the perception of students towards E-learning. (See Table.2)

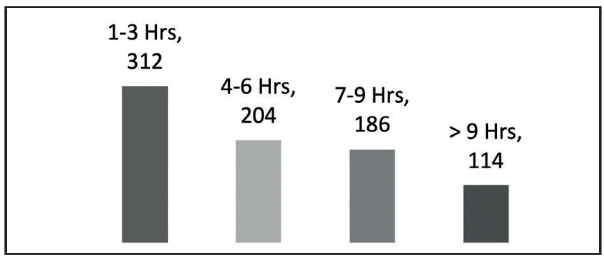
Table-2: Basic Information regarding Online Classes

Questions	Response	Percentage
Did you attend any online course		
earlier?	No	87
	Yes	13
Whether your school has begun online classes in the wake of corona?	No	
	Yes	1
What will you suggest to meet the current situation?	Curriculum schedule can be suspended	21
	Assignments and reading materials can be provided	5
	Managing with online classes	74

Daily Screen Timing

The below figure 1 predicts that 312 students screen timing is from 1-3 hours and only 114 students screen timing is more than 9 hours.

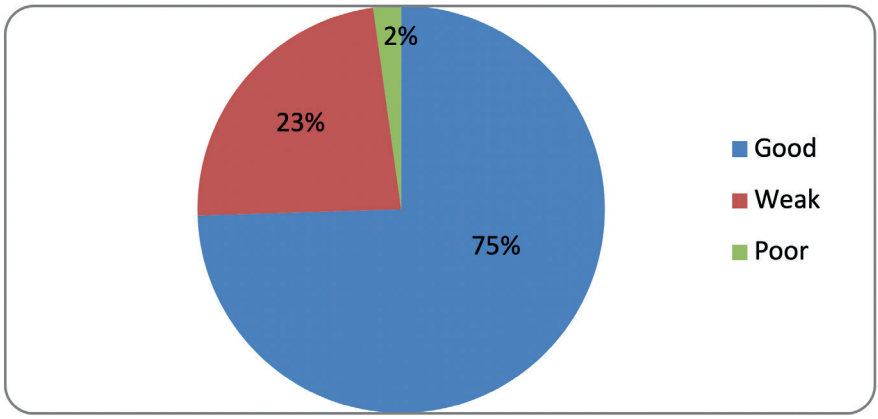
Figure-1: Daily Screen Timing



Internet Connectivity

It was found that (608) 75 percent the students have good internet connections in their house. Hence, the student's do not face many technical issues related to weak connectivity, joining problem or instructor's voice issue.

Figure-2: Internet Connectivity



Device Availability

Majority of the respondents use their parent's smartphones and laptops (53 percent of the respondents). Hence, they do not have a problem of availability of the device for attending online classes (See Table-3).

Table-3: Availability of Devices

Available Device for the Students	Total No. of Students	Percentage
My Smart Phone, My Laptop, Parent Smart Phone	48	6
My Smart Phone, Parent Mobile	144	18
My Laptop and Parent Mobile	95	12
My Laptop and Parent Laptop	52	6
My Tablet and Parent Mobile	45	6
My Parents Mobile and Laptop	432	53

Respondent's Perception towards Online learning

1. Technical knowledge and Internet Connectivity

The result on the attitude of students towards technical Knowledge and Internet connectivity revealed that the students have sufficient equipment like smartphones, laptops, tablets, etc. to participate in online classes and do not suffer from internet connectivity problems. But for the guidance provided before the implementation of online classes and having sufficient data for online classes, they were neutral. As many expressed that after 2-3 classes their net data pack get over.

Table-4: Descriptive statistics on the attitude of students towards Technical Knowledge and Internet connectivity

Questions	Min	Max	Mean	SD
1.You have sufficient equipment and facilities (computer/laptop/Internet/software) to participate for online lectures	1.00	5.00	3.55	1.16
2.You have sufficient computer knowledge and IT skills to manage your online learning	1.00	5.00	3.51	1.15
3.Guidelines are provided (ex. how to use relevant online tools) before starting online lectures by your lecturer	1.00	5.00	3.28	1.25
4.Have good internet connectivity	1.00	5.00	3.43	1.19
5.Have sufficient data for online classes	1.00	5.00	3.34	1.26

2. Attitude of students towards Online Classrooms

Table 5 reflects the attitude of students towards online classes. The below table depicts that the Statement "Online tools are easy to use" and "happy about online teaching methods and lecture materials" students were neutral. The students disagreed that online lectures are more effective than traditional classrooms and online learning is fun for them. They were neutral on the questions that with online classes they gained new experience and it has reduced their writing work.

Table-5: Descriptive statistics on Attitude of students towards Online Classrooms

Questions	Min	Max	Mean	SD
1.Online tools are easy to use	1.00	5.00	3.22	1.19
2.Happy about online teaching methods and lecture materials	1.00	5.00	2.86	1.23
3.Online lectures are effective than traditional/ live classroom lectures	1.00	5.00	2.06	1.12
4.Using online learning is fun	1.00	5.00	2.56	1.20
5.Gained experience of learning in a new online environment	1.00	5.00	3.36	1.23
6.Lack of written work	1.00	5.00	3.18	1.32

3. Students Relationship with their teachers and fellow mates

The result depicted in Table 6 that during online classes' students lack contact with their teachers as well as classmates and they were unhappy about their interrelationship with their fellow-mates and teachers during E-classrooms. Students agreed that the lectures and notes are not sufficient for them, and they were neutral to the point that they get the proper facility to clear their doubts.

Table-6: Descriptive statistics on students Relationships with their teachers and fellow mates

Questions	Min	Max	Mean	SD
1.Lack of direct contact with other students/colleagues/friends	1.00	5.00	3.80	1.21
2.Lectures and notes are sufficient for me to understand the topics	1.00	5.00	2.69	1.23
3.Are you happy about the student-teacher interaction during online teaching & learning process	1.00	5.00	2.80	1.22
4.Do you have facility to ask questions or clear doubts during online lectures	1.00	5.00	3.21	1.24

4. Attitude of students towards Flexibility of Online Classrooms

Table 7 displays that student were neutral on the flexibility of online lectures as time schedules were fixed for the classes, but they enjoyed the flexibility of study location as from anywhere they can access online classes. Student's responses towards the motivation for online lecturers were neutral as well as on finding a suitable home environment for E-classrooms.

Table-7: Descriptive statistics on Attitude of students towards Flexibility of Online Classrooms

Questions	Min	Max	Mean	SD
1.Flexibility in participating for online lectures	1.00	5.00	3.06	1.23
2.Motivation is high in participating online lectures	1.00	5.00	2.86	1.15
3.Home environment is suitable for participating online lectures	1.00	5.00	3.05	1.31
4.Study location becomes flexible	1.00	5.00	3.44	1.26

5. Health Issues of students

Table 8 revealed that due to online classes students suffer from headache problems, irritation in the ears, feeling tired and lethargic and excessive screen timing causes eye problems. They were neutral on the Statements that "Frustration and lack of interest during lockdown" and "complain about pain on backs, shoulders and neck.

Table-8: Descriptive statistics on Health Issues of students due to Online Classes

Questions	Min	Max	Mean	SD
1.Frustration and lack of interest in learning while being locked down	1.00	5.00	3.09	1.41
2.Have complain about extreme pain on backs, shoulders, and neck muscles because of slouching or straining for long periods of time	1.00	5.00	3.18	1.30
3.Due to long screen timing have headache problem	1.00	5.00	3.38	1.35
4. Excessive use of headphones irritates my ears	1.00	5.00	3.44	1.33
5.Feel tired and lethargy due to excess sitting posture	1.00	5.00	3.67	1.31
6.Excessive use of screen creates my problem in eyes	1.00	5.00	3.65	1.36

Discussion

The primary purpose of this research was to examine the perception and preference of school students regarding online classes and to explore the favourable factors useful in future for the blended teaching approach.

The study has identified the successfulness and hindrance factors of online learning with respect to student's perceptions. The factor identified for the successful implementation of E-learning where online classes should not be for long hours as to avoid physical problems due to prolonged sitting posture and working with electronic gadgets, which is supported by Thompson's (2014) revealed the formula of work for 52 min and have to break for 17 min. Further, the technical proficiency of learners too is a major requirement for the efficient usage of online classrooms. Apart from this, students enjoy the location flexibility and convenience to work in E-classrooms as they have the freedom to join their class anywhere from their home as well as use mobile, laptop, or tablet as per their convenience. Poole (2000) found that class schedules should be fixed as per the convenience of student's and online classrooms can be made better if pre-recorded videos are uploaded so that students can access it anytime.

School education system is based on a strong bond between teachers and students, but in online classes it lacks. According to Johnson et al. (2008) for the satisfaction of participants, E-learning requires a developed and a collaborative learning space, whereas a strong correlation between learner's social presence and their over satisfaction (Gunawardena and Zittle, 1997). Further, health issues are one of the major constraints as prolonged uses of electronic devices have the worst effect on their eyes and make them lethargic.

In the school education system where the students are learning to be disciplined and collaborative, shifting completely to online mode is very difficult and impossible. Hence, the factors found favourable for the successful implementation of E-learning were:

Table-9: Factors affecting the success of Online classes

Factors Identified	
Availability of Device	Requires suitable devices and electronic gadgets
Internet Accessibility	Good internet connectivity to attend the classes without interruption
Data pack	Sufficient data pack to attend all the classes regularly
Technical Skills	Knowledge of computer and internet is required
Easy to use	User friendly and less writing work
Instructor's Competency	Instructor should be well trained and efficient in computer knowledge
Flexibility	Study anywhere and any time
Interactive	Inter-relationship between teacher's-student's and student's- student's. Allowed to switch on their mice as well as cameras regularly
Motivation	Needed self-discipline and goal direction
Time schedule	Online classes should not be more than 2-3 hours
Health Issues	Students' regular follow-up on their health should be taken care

Soon the school education may think of a blended approach as for small kids' self-direction study is very difficult. The finding of the study will be very useful in designing the effective structure of online classes as well as for the development of course content for E-learning.

Conclusions

At present, it may be too early to speak about the adaptation of E-learning among students and teachers, but it is necessary to address the constraints and challenges of student's during E-classes.

The findings of the study revealed that most of the school students have adopted the E-classroom pedagogy very successfully. E-learning turned out to be a successful methodology during the pandemic. But students did not find this teaching methodology much effective in comparison to traditional classrooms.

Further, students enjoyed the flexibility and convenience of virtual classrooms, but they do not have the flexibility to learn anytime as the timetable was fixed and mandated, whereas they enjoyed the convenience of E-classrooms as they were free to join from anywhere. Students feel isolated and lack interaction with teachers and fellow-mates as the class timing is fixed and they must keep their mice and cameras off during the classes. Apart from this due to excessive use of technology, students suffer from eyesight problems, some have irritation in ears because of excessive use of headphones and sitting for long hours make them lethargic. Hence, all these factors should be considered while developing E-learning courses at school level to make it more effective. After the COVID period is over this new learning will provide a new platform in the Indian education system, but it requires a systematic planning and implementation. The outcome of this study will be useful for redesigning blended teaching methodology in the school education system.

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