



# A Study of Digital Divide and Online Learning Habits of Senior Secondary School Students During Covid-19 Pandemic

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## Abstract

The present study investigates the digital divide and online learning habits of senior secondary school students during covid-19 pandemic. In this study random sampling technique was employed. The sample comprised of 200 students of class 11<sup>th</sup> and 12<sup>th</sup> of Chandigarh schools only. The present study is quantitative in nature wherein descriptive survey method was employed to collect the data. The questionnaire of online study habit and digital divide are prepared by the investigator for senior secondary school students. This study is experimental in nature. Finding of the study indicates that the investigator reached at conclusion that online teaching-learning is not equally available to all 200 respondents in the context of digital divide. The result is that respondents of most of the respondents have digital device to attend online classes but some do not have.

## Keywords

Digital divide, online learning habits, covid-19 pandemic

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## I. Introduction

Online learning is a learning that takes place over the internet, takes place across distance and not in a traditional classroom. A learner takes this education via. computer, smartphone, or laptops, etc. Online learning is also called e-learning, blended learning, mobile learning, online education, or virtual learning.

In the year 2020, online learning became the prevalent mode of education due to Covid-19, the pandemic. All the educational institutions were shut down. There was a huge impact on the educational system during the pandemic. It has significant effects on the lives of the students. Since March 2020, there has been online learning going on mostly.

The pandemic has changed the whole scenario of education in India. Many schools, colleges, and universities are channeling efforts and providing education via ZOOM, GOOGLE MEET etc. to expand their online engagement. They motivate learners for self-study learning. Government also takes initiatives to lessen the gap of the teacher-student. The worst effect of the pandemic is on the school going children. Even seminars, workshops, webinars etc., are taking place through digital mode. During this pandemic some are offering free courses but the thing is not everyone is able to access these services.

Undoubtedly, online learning is the need of the hour, however it also puts bad impact on learning habits of students. Nowadays, students are taking online classes sometimes they just join the class but actually they are not listening, sometimes they even are not present and roam here and there. Some students are optimally using this digital mode of learning in many ways and utilizes their time effectively but many students are unable to get along this online learning mode because either they do not have digital devices or they are not able to attend classes because of insufficient balance, poor or unreliable network. Some educational institutions have been providing digital devices to needy students but still there is learning gap because of lack of devices, unreliable network, apathy of teachers and insufficient support of family and friends. This digital divide or learning gap is seen across the countries.

UNESCO has estimated that around 1.26 billion children or 70 percent of children around the world have had their education interrupted because of the pandemic and a large number of these children are from what UNESCO calls the “low tech or no tech” phase, with India contributing 300 million of the 1.26 billion children. It is evident that Covid-19 pandemic has significantly disrupted the core of our educational system and highlighted its many vulnerabilities.

### **Concepts defined**

#### **Learning**

Learning is the process of acquiring new understanding, knowledge, behaviors, skills, values, attitudes, and preferences. The ability to learn is possessed by humans, animals, and some machines; there is also evidence for some kind of learning in certain plants.

#### **Online learning**

Online learning is education that takes place over the Internet. It is often referred to as “e- learning” among other terms. However, online learning is just one type of “distance learning” - the umbrella term for any learning that takes place across distance and not in a traditional classroom.

#### **Digital divide**

Digital divide refers to that gap which is among those who have digital devices and those who do not have access to digital devices. In the year 2020, the digital divide is very much reality today.

Moreover, it is the difference between demographics and areas that are updated with ICT and some are not having access or updated with it.

Digital divide is basically a socially and economically inequality. Moreover, its uneven distribution of digital devices in the society. It was also prevalent in the past and disparity among genders and learning habits was there.

#### **Study habits**

Study habit is behavior or action that a student engages in regularly and habitually when preparing for tests, academic learning material in order to complete the task. Study habits play a significant role and are considered significant to acquiring good grades, and useful for learning.

Study habits are defined as the regular tendencies and practice that one depicts during the process of gaining information through learning. Each one of us has different study habits. Study habits play a big role in determining a success in the learning process.

Study habits can be good or bad. Good study habits mean keeping to a daily routine. Moreover, good study habits giving all subjects equal treatment and time. Good study habits play a significant role in one's success.

Murphy (2020) conducted research and examined the COVID-19 pandemic quickly led to the closure of universities and colleges around the world, in hopes that public health officials' advice of social distancing could help to flatten the infection curve and reduce total fatalities from the disease. Drawing on Copenhagen school securitization theory and analyzing 25 declarations of emergency eLearning at American universities, I argued that in addition to COVID-19 being framed as a general threat, face-to-face schooling was also presented as a threat through these policies. A review of securitization theory—with particular attention to the question of advocacy and the relationship of desecuritization to emancipation—grounded the investigation theoretically. I argued that securitization theory was an important tool for educators not only for observing (and understanding) the phenomenon of emergency eLearning, but also for advocating the de-securitization of schooling after the COVID-19 crisis passed.

Yu (2021) conducted research and found that the main focus of the study was COVID-19 pandemic, Educational levels, Gender and Personality. With the rampant pandemic of COVID-19 and found that an increasing number of people were acquiring knowledge through online learning approaches. This study aimed to investigate how to improve online learning effectiveness during this special time. Through a mixed design, this study revealed the effect of educational levels, gender, and personality traits on online learning outcomes. It was concluded that postgraduates (N=599) outperformed undergraduates (N=553) in online learning, learners (N=1152) with strong personality traits such as agreeableness, conscientiousness, and openness to a new experience outperformed those with strong extraversion and neuroticism. Future research could improve interpersonal interactions and encourage learners to post words in the online discussion forum, focus on how to design scaffolding online learning and how to improve the quality and dynamic of the online contents, and highlight blended learning rather than either merely online or traditional face-to-face learning.

Lawrence, Clement, Fakuade, Victor (2021) conducted research and found that the focus of the research was adolescent learners; COVID-19 lockdown; online learning commitments; learning participation;

and parental involvement. During the escalating corona virus disease-2019 (COVID-19) pandemic, attempting to contain its spread, many educational institutions shut down face-to-face teaching and learning activities globally due to a complete lockdown. This lockdown revealed emerging vulnerabilities of education systems in the low and middle-income countries of the world, with Nigeria being no exception. This research study assessed parental involvement, learning participation and the commitment to online learning of adolescent learners during the COVID-19 lockdown in Nigeria. The method used to collect data was an online survey questionnaire to examine the level of online learning commitment and the contributory roles of each of the factors to online learning commitment of adolescent learners. In total, 1407 adolescents (male = 38.8%; female 61.2%) aged between 12 and 20 years (mean = 15; SD = 4.24) responded to the online survey, which was open for 2 months. Data were analysed using descriptive statistics of frequency distribution and inferential statistics of multiple regression. The findings revealed that the commitment level of adolescent learners to online learning was high. The findings further yielded a coefficient of  $R = 0.439$  and  $R^2 = 0.192$  variance in the prediction of the outcome measure. Parental involvement contributed 32% ( $\beta = 0.322$ ,  $p < 0.05$ ) and learning participation contributed 23% ( $\beta = 0.234$ ,  $p < 0.05$ ) towards online learning. The result was that parental involvement and learning participation played a significant and positive role in the commitment of adolescent learners towards online learning during the COVID-19 lockdown in Nigeria. The authors suggested that parents be encouraged to synergise with the digitalized revolution, while the need for further in-depth research on the subject is emphasised in the suggestions for future research.

Tapashi (2018) conducted research and examined that change was the only constant and so with changes in time, world changes. What was latest yesterday becoming outdated today and in today's world technology is changing at such a fast pace that if one was not well equipped and informed then the possibilities of missing many important opportunities in life is inevitable. Though change was inevitable and one must learn new technologies to adapt to this ever-changing world, equipping oneself was not taking place at the same pace in every corner of the world. Developed countries were better equipped and learned faster whereas developing and under developed countries failed to implement changes due to lack of infrastructural access and learning skills. This difference was leading to a division among countries, societies, race, and people in harnessing technology fruitfully and was termed as digital divide. An attempt was made by the researcher through this paper to explore the digital divide that existed in India and brought to the front the penetration of internet and its usage by the people in India; also, the initiatives under the ambitious Digital India Program was highlighted in the paper to find out India's progress in transforming itself into a digital society.

Cheema (2019) conducted research and examined the term "digital divide between genders" described the qualitative and quantitative differences between men and women regarding the availability of modern forms of information and communication technology (ICT). In this era of modernization, many developed societies had been trying to inculcate such an attitude among its members that using the internet would cherish well-being in various spheres of life. However, women, despite forming a major part of the world's population, had been underrepresented in the ICT sector. They were deemed as technophobic and hence, late entrants in the realm of information technology (IT), which was thus taken as generally male-dominant. This trend, however, needed to be revised and the women folked ought to be persuaded to make use of the internet in their life. In this context, the problem of digital gender equality had emerged as a significant issue and faced considerable opposition in the community. I, therefore, decided to elaborate upon it to create awareness among the readers. The study, thus, reflected upon the impact of fast emerging ICT on socio-cultural perspectives of the global community and upon the threat to the online security of females.

Shetty, Kamath and Nalini (2021) conducted research and the main focus of this study was academic stress, study habits and undergraduate students. Academic stress and study habits were crucial indicators of academic success. Now, faulty study habits pressed on the students into academic stress. The present study was conducted to identify the academic stress and study habits of university students of health science. The method included in this research was the cross-sectional descriptive survey. It was conducted among 150 undergraduate students of nursing, physiotherapy, and pharmacy ( $n = 50$  in each group). A stratified random sampling technique was used to select the study participants. The information on academic stress and study habits was collected by using the Student Stress Inventory and Palsane and Sharma Study Habit Inventory, respectively. The results of this study were like this - Mean score of academic stress was found to be  $75.353 \pm 16.463$ . Pharmacy students had a higher level of stress compared to physiotherapy and nursing students ( $p = 0.013$ ). Furthermore, the prevalence of unsatisfactory study habits among undergraduate students was 72%, with a mean score of  $52.7 \pm 9.152$ . Also, nursing students had a higher level of study habits compared to physiotherapy and pharmacy Students. There was no significant relationship found between study habits and academic stress ( $r = -0.048$ ,  $p = 0.557$ ). There was a significant association found between study habits and gender ( $p = 0.021$ ), as

well the association found between stress level and course type, Pre-University Course percentage, and first-year percentage ( $p = 0.044, 0.04, \text{ and } 0.044$  respectively). In the nutshell, Academic stress and poor study habits were prevalent among undergraduate students. This indicates strategies needed to be formed to enhance healthy study habits and alleviate the academic stress of the students, mainly in professional courses; it is an urgent need.

Tuan (2021) conducted research and the main focus of the study was interpersonal relationship, social networking sites, learning styles, study habits and ubiquitous and the investigator found social media had a profound influence on every aspect of human beings nowadays. This study investigated the impact of social networking sites on study habits and interpersonal relationships at the tertiary level. A total of 125 college students from different universities in Hanoi were chosen through a convenience sampling technique. Quantitative methodology was used for the research instrument and a descriptive survey design was adopted for this study. The researchers designed questionnaires with Cronbach's alpha reliability coefficients of at least 0.84 to collect data for the study. Analysis of the data was carried out using frequencies, percentages, means, t-tests, and Pearson correlation statistics at the 0.05 alpha level. The findings revealed that students' level of using social networking sites had a negative influence on their study habits and their interpersonal relationships. Based on the findings, it was recommended that regular orientations should be given to students on how and when to use social media to enhance their study habits or to spend time improving their interpersonal relationships with their families, friends, and teachers.

### **Objectives of the study**

The main objectives of this study are as under: -

1. To study the accessibility and availability of digital devices and online learning platforms to gauge the level of digital divide.
2. To study the habits of senior secondary school students studying in the new mode of online learning.

### **Research questions**

1. Is online teaching-learning equally available to all students? Are all students able to access and avail the digital devices and online learning platforms?
2. What online learning habits are practiced by the learners in the new mode of online? Are students able to cope with changes in their learning habits demanded from them?

### **Need of the study**

The need of study is to find out that digital divide and online learning habits of senior secondary school students during covid-19 pandemic. What the problems students are facing while taking online learning and accessibility of computers and the internet. Moreover, they have their own devices or shared devices, teachers meet with their needs or not. There is also a lack of knowledge about online tools. The need of the study is to create an understanding of online learning habits and digital divide and ways of improvement in order to solve those problems. Therefore, the significance of this study is to find out how education of senior secondary school students and online learning habits are affected by online classes and digital divide.

### **Research methodology and procedure**

It is very difficult to study the whole population for which the problem is being investigated. Every research design therefore, resorts to sampling. Sampling is the process by which a relatively small number of individuals or measures of individuals, objects or events is selected and analyzed in order to find out something about the entire population from which it was selected. The carefully selected sample contains all the properties of the population from which it was selected. The carefully selected sample contains all the properties of the population from it has been raised. It helps to reduce expenditure, saves, time and energy, permit measurement of greater scope or produce greater precision and accuracy.

### **Sample of the study**

In the present study, random sampling technique was employed. The sample comprised of 200 students of class 11<sup>th</sup> and 12<sup>th</sup> of Chandigarh schools only.

### **Tools for the data collection**

The following tools were used to collect the data:

1. A questionnaire of Online Learning Habits prepared by the investigator.
2. A questionnaire on Digital Divide made by the investigator.

### **Design of the study**

The present study is quantitative in nature wherein descriptive survey method was employed to collect the data. Descriptive research studies are designed to obtain pertinent and precise information concerning the current status of the phenomenon and whenever possible to draw valid general conclusions from the facts discovered. The variables under study are digital divide and online learning habits.

### **Description of the tools**

The questionnaires of (i) Online Learning Habits; and (ii) Digital Divide were prepared by the investigator for senior secondary school students.

The questionnaire of Online Learning Habits consists of two parts – Part A has 21 items and Part B has 9 items. Part A has items related to during online session learning study habits and Part B has before/after class online learning study habits.

The questionnaire of Digital Divide has 25 Items covering the domains of availability/accessibility of digital device; ease of operating it and other challenges related to online resources.

### **Procedure of data collection**

The data for the present study was collected online by the investigator. The tools employed in the study were administered to the 200 school students of two schools (one government and one private) situated in Chandigarh. The principals of the schools were requested for permission to collect data and both were kind enough to allow the investigator to collect data through Google forms sent on WhatsApp groups.

Online learning study habits and digital divide were administered by to 200 Students selected from schools of Chandigarh. The requirement of the study was to take senior secondary school students (Class 11th and 12th only).

It took about 15 days to finish data collection. The students were given Google forms in their WhatsApp groups and were advised to give honest answers to the questions asked in the questionnaires. They were informed that their responses would be kept secret and confidential.

### **Statistical techniques used**

The descriptive statistical techniques have been employed to give picture of the whole data and for its better comprehension and in this study suitable statistical procedure and technique was applied for analysis of data. The obtained data was analyzed to compare and calculate the results following statistical techniques will be applied: -

1. Representation of data in percentages.
2. Graphical representation of data wherever needed.

## **II. RESULT AND INTERPRETATION QUESTIONNAIRE ON DIGITAL DIVIDE**

<b>Sr. No.</b>	<b>ITEMS</b>	<b>YES (%)</b>	<b>NO (%)</b>
1.	I have a digital device (Desktop, laptop, mobile or tablet) for attending online classes.	95	5
2.	Were you able to attend the online classes since beginning of classes	89.5	10.5
	a.Lack of device	68.5	31.5
	b.Internet Package	73	27
	c. I did not know how to attend classes	52.5	47.5
3.	I have my own device for attending online classes (Not shared with anyone or borrowed from anyone)	82	18
4.	I have access to uninterrupted stable internet connectivity to attend online classes.	89.5	10.5

5.	Uninterrupted power supply for attending online classes.	84.5	15.5
6.	I can comfortably use application (Zoom, Google Meet etc.) for attending online classes.	91	9
7.	I know how to open online class link?	61.5	38.5
8.	I know how to share my screen during online classes.	59	41
9.	I know how to submit work in online application (Google Classroom).	71.5	28.5
10.	I have a less knowledge about Google classroom and it creates stress.	26	74
11.	I have a printer at home to print worksheets.	24.5	75.5
12.	I take rough notes in lectures, and then type and save in digital device.	74.5	25.5
13.	I face difficulty in accessing material from Google classroom.	47	53
14.	I don't have knowledge about sharing presentation.	54	46
15.	I am concerned about my safety and privacy while attending online classes during pandemic.	71	29
16.	My data plan regularly runs out.	54	46
17.	I have a data for attending classes.	79.5	20.5
	a. Wi-Fi	50.5	49.5
	b. Hotspot	55	45
	c. Cellular Data	66.5	33.5
18.	I face storage problem due to more content/material (messages, videos, images) sent by teacher/ school.	44	56
19.	I am disturbed continuously (due to messages, notifications, classroom links etc.)	47	53
20.	My class gets disconnected, when during class phone call is being picked up.	63	37
21.	I am unable to unmute myself because sometime phone hangs.	51	49
22.	Sometime I am unable to turn on camera and microphone simultaneously.	60	40
23.	I feel irritated when shared screen is not visible or clear during class.	53	47
24.	I am unable to turn on camera because my personal computer don't have web cam.	47	53
25.	I face outside interference during online classes on digital device at home.	58	42

To find out that whether online teaching-learning equally available to all students. Are all students able to access and avail the digital devices and online learning platforms.

- From the above results, it is clear that online teaching-learning is not equally available to all students. All students are not able to access and avail the digital devices and/or online learning platforms.

- Majority of respondents (95%) have digital device as compared to about 5% respondents who don't have digital device to attend classes. Some have desktop, laptop, mobile or tablet for attending online classes but some have not any device.
- But mere access of device is not a sufficient condition to avail & benefit from online learning. As some students were not able to access and avail the digital devices and online learning platforms because they have financial problem; while those who have devices, they had less knowledge about how to attend online classes.
- Most of the students attend online classes through cellular data and also faces problem of frequent interruption or unstable internet connectivity and power supply to attend online classes. Moreover, students have less knowledge about Google Classroom, and do not have printer to print worksheets. Those students who have data but runs out regularly and it creates stress among students.
- 58% out of 200 respondents faced outside interference during online classes on digital device at home whereas 42 % did not face outside interference.

**PART B**

Sr. No.	ITEM	Yes(%)	No (%)
1.	When the class is on, do you attend entire class	89	11
2.	Do you listen to your teacher carefully?	95	5
3.	Do you watch videos shown to you by your teacher?	89.5	10.5
4.	Do you make notes (new words/definitions/questions answers/instructions/etc.) during class?	85.5	14.5
5.	Do you participate in class discussion?	87	13
6.	Do you ask questions from your teacher when you are in doubt?	89	11
7.	Do you have a proper place to attend class during pandemic?	81.5	18.5
8.	Do you have a proper sitting arrangement for attending online classes?	81	19
9.	When teacher says to turn on your camera, do you turn on the camera?	83	17
10.	Do you turn on your microphone when teachers ask you to do?	86.5	13.5
11.	Do you ask your teacher to repeat, when teacher's voice is not audible to you?	87.5	12.5
12.	When class starts, what you do actually: -		
	a. Join online classes & attend completely/attentively	84	16
	b. Log-in but don't attend properly	45.5	54.5
	c. Log-in but do something else (watching TV/ social media/Music/read magazine or storybook etc.)	60.5	39.5
	d. Join but help in household work	59.5	40.5
	e. Join but gossip with family/friends while classes are on	59.5	40.5
	f. Cannot join regularly because of lack of facilities	68.5	31.5
13.	Do you eat between the classes during pandemic?	54	46
14.	Do you interact with teacher during online classes?	55	45

15.	During the classroom teaching, you take down notes very sincerely?	91.5	8.5
16.	Do you attend your classes regularly on time?	89	11
17.	Do you get guidance about proper study habit from your teachers during class?	84	16
18.	Do you take rough notes in lectures, and then copy them out more fully and neatly later?	80.5	19.5
19.	Are you outspoken during class?	64	36
20.	Do you focus well on what the teacher is saying?	90	10
21.	Do you proactively participate in group work?	87	13
22.	Have you prepared any schedule/time table for self-study after classes?	86.5	13.5
23.	Do you follow the schedule/time table for yourself study after classes?	82.5	17.5
24.	Do you spend on self-study during pandemic?	92.5	7.5
25.	What would you do when you don't understand a/any topic from syllabus or related to your studies? a. Ask teacher during class	64	36
	b. Ask tutors at a private tutoring	65.5	34.5
	c. Ask friends	82	18
	d. Ask parents	75	25
	e. Research from reference books on my own	87	13
	f. Research online	87.5	12.5
	g. Explore by yourself	61.5	38.5
	h. Leave it	63	37
26.	Do you submit your work on time?	61.5	38.5
27.	Do you practice worksheets given to you after classes?	70.5	29.5
28.	Do you compare your class notes with the notes from the text books?	58.5	41.5
29.	Do you check notifications sent by teachers/school (about classes/test/assignment/submission dates, etc.)?	81	19
30.	While studying (self- studying) do you prefer to listen to music/watch TV alongside?	68	32

To find out that online learning habits are practiced by the learners in the new mode of online? Are students able to cope with changes in their learning habits demanded from them?

From the above results, it is clear that all students attend class, listen to the teacher very carefully. 89% respondents attend entire class where as 11 % not. 95% listen to their teacher properly, and 89% respondents out of 200 respondents watch videos shown to them by their teacher. 85.5% make notes while attending classes



during pandemic. 87% participated, ask questions, had proper place to sit. More than half respondents obeyed teacher, turned on microphone, camera and cleared doubts. Students joined class on regular basis and interacts with the teacher, focused well, actively involved in group work. Students had prepared/ scheduled time table for self-study after classes during pandemic. All Students clears their doubts from the more competent person and explored by themselves, research online, research from reference books during pandemic and submit their work in time, practice worksheets. 81% respondents out of total 200 respondents actively checked messages, notifications by school etc. Last but not the least, all students concentrate on study only, not preferring to do other activities.

### III. CONCLUSIONS

The major part of the world is on quarantine due to the serious outbreak of global pandemic covid19 and therefore many cities have turned into phantom cities and its effects can be seen in all educational institution. Online teaching learning plays a significant role. Online learning is no more option, it is a necessity the corona virus has made institutions to go to from offline mode to online mode.

In a nutshell, the investigator reached at conclusion thatonline teaching-learning is not equally available to all 200 respondents in the context of digital divide. The result is that respondents of most of the respondents have digital device to attend online classes but some don't have. School plays a wonderful role during pandemic. Some challenges are also there in the way of respondent's learners. For example, interrupted power supply, unstable internet connectivity, Storage problem due to more content, phone hangs etc. The good thing is online learning, that most of the respondents attend the entire class when it starts and listen carefully to the teachers and clears doubts from the competent person, asked parents, friends, search from reference book have digital device to attend online classes. Technology is a boon for learners during pandemic.

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