

Online Education during COVID-19 in Punjab: A Study on Perception of Teachers

Hardeep Kaur¹ & Ishu Chadda²

¹Assistant Professor, R R Bawa DAV College for Girls, Batala (143505), Punjab,

²Assistant Professor, Department of Management Studies, Amritsar Group of Colleges, Amritsar, Punjab

Email: ishuchadda@gmail.com

Abstract

The closure of various educational institutions during the Covid-19 Pandemic resulted in an unplanned shift from the offline mode to the online mode of education. This shift created various perceptions amongst teachers as well as students. In this context, the present study aims to explore the perceptions of teachers regarding this transition. The teachers from various educational institutes of Punjab i.e. from schools, colleges and universities, were asked to give their opinion on the online teaching-learning practice. The structured questionnaire was framed and administered through Google form and drawn online on 250 teachers of Punjab during the period from 13-31 January 2021 (more than two weeks), using a snowball sampling technique. The present study deployed descriptive statistics and factor analysis. The positive factors that impacted this transition were teacher's characteristics, technical support from institutions, a supportive educational environment for students, social support, and a life-long learning process. The challenges faced by teachers are hedonic motivation, personal problems, and technical problems. The paper outlined that teachers preferred the regular and blended mode of education instead of the entire online system due to various constraints.

Keywords: Covid-19, Teacher's Perception, Cross-Sectional Data, Factor Analysis, Online Education

Introduction

During the Covid-19 pandemic, the whole world is disturbed. The pandemic was unexpected and forced the world towards a sudden and disruptive transformation. Academics also faced huge difficulties and the massive transformation worldwide during the Covid-19 outbreak from face-to-face learning to online teaching platforms. Consequently, online teaching-learning practice has taken a surge without which the education system would have become ineffective and could collapse. One of the main priorities of the education system is to provide flawless education to the students. The government does not want to make any

compromise with the study of students whether they belong to elementary or higher-level education. These circumstances pushed the classroom teaching of the whole world towards the online/virtual classrooms along with challenges.

Since March 2020, everything was shut down for a long time due to lockdown; the only feasible and viable solution to the problem was online education. Technology plays an important role in it. The technology-based teaching-learning process has started a revolution in the field of education with manifestation in reality. Although online learning was not a new phenomenon, it was not adopted formally hitherto. This sudden

transformation from regular classes to online education put an impact on both the teachers and students. It requires consistent efforts on the part of both. Imparting education in the digital mode has many advantages as it is free from physical boundaries, cost-effective, flexible, and has more retention power (Sareen and Nangia, 2020). But online teaching is not free from problems and its challenges and limitations. These problems are internet connectivity, increased work, complexity, accessibility, and monitoring of the student's progress (Thomas, 2020).

In the light of this scenario, an attempt has been made to study the impact of Covid-19 on education. Teachers are the key drivers; who are engaged in building the future of the students. The present paper studies both qualitative and quantitative approaches which help in analysing the perception of teachers on sudden online shifts in teaching-learning practice. For this purpose, an online survey (Google Form) was conducted to study the opinion, perceptions, and challenges faced by the teachers during this period. A total number of 250 teachers from various educational institutions have participated in this online survey.

Objectives of the Study: In this light of the above-mentioned details, the objectives of the study are:

- To study the various modes of online teaching-learning adopted by teachers during the Covid-19 pandemic.
- To study the perceptions of teachers on this sudden shift to online/virtual classes.

Basic Framework and Data

Design of the Present Study:

The teachers of Punjab from various educational institutions, i.e. from

schools, colleges and universities, were asked to give their perception of online teaching-learning practice.

Sample of the Study:

The structured questionnaire was framed and administered through Google form and drawn online on 250 teachers of Punjab during 13-31 January 2021 (more than two weeks), using a snowball sampling technique.

Tools of the Study:

The questionnaire consisted of Open-Ended and Closed-Ended questions. The questionnaire consists of the socio-demographic details of the teachers, the information related to the teaching-learning tools used, types of devices, internet platforms used by teachers, and duration of classes. The next section of the questionnaire delineated the respondents' perception of virtual classes. For this purpose, all the statements were measured using a Five Point Likert Scale. A Five-Point Likert continuum was used to rate the statements on the scale of strongly agree, agree, neutral, disagree, and strongly disagree (Malhotra et. al., 2006). The teacher's opinions and perceptions were sought on 24 statements about the sudden change from regular classes to virtual classes due to the pandemic.

Methods of the Study:

The data were transcribed through a deductive encoding-decoding method and analyzed with the help of SPSS software. The data collected were analysed by employing descriptive statistics and factor analysis.

Descriptive Statistics: The percentage analysis of the socio-demographic profile of respondents and online platforms and tools used by respondents was done.

Cronbach's Alpha: The reliability

of the statements was checked by employing Cronbach's Alpha Method. Cronbach's alpha is a coefficient of internal consistency or reliability check (Cronbach, 1951). In the present study, Cronbach's alpha is calculated as follows:

$$\alpha = \frac{n_{24} \cdot \underline{x}}{\underline{v} + (n_{24} - 1) \cdot \underline{x}}$$

Here, α is Cronbach's alpha;
 n is the number of statements;

\underline{x} is the average covariance between statements-pair;
 \underline{v} is average variance.

Factor Analysis: The participants were asked to rate the 24 statements on a Five Point Likert-Continuum. To extract the factors from these statements, Factor Analysis statistical technique was adopted. Factor Analysis is a method to explore the factors from the mentioned number of statements/variables (Malhotra et. al., 2006). The detailed model of factor analysis of the present study is as follows:

$$X_1 = \beta_{1(0)} + \beta_{1(1)} F_1 + \beta_{1(2)} F_2 + \dots + \beta_{1(8)} F_8 + e_1$$

$$X_2 = \beta_{2(0)} + \beta_{2(1)} F_1 + \beta_{2(2)} F_2 + \dots + \beta_{2(8)} F_8 + e_2$$

.....

$$X_{24} = \beta_{24(0)} + \beta_{24(1)} F_1 + \beta_{24(2)} F_2 + \dots + \beta_{24(8)} F_8 + e_8$$

Here, X_1, X_2, \dots, X_{24} are the 24 statements asked from the teachers.

F_1, F_2, \dots, F_8 are the 8 components extracted.

β_{12} is the loading of variable X_1 on factor F_2 .

$e_1, e_2,$ and e_8 are the error terms, present to indicate that the hypothesized relationships are not accurate.

Ethics Approval:

Informed consent was obtained from the respondents. The respondents were informed about the aims and implications of the study. The respondents were assured of confidentiality, security, and anonymity of information. The response rate of the respondents was 100 per cent and only one response was obtained from the participants to avoid duplication. No

payment or reward was provided to any of the respondents.

Results and Discussion

This section explains the results of the present study based on details obtained from the 250 questionnaires surveyed. The data were encoded-decoded first and then it was analyzed using SPSS version 21. The results related to each section are explained below separately.

Table-1: Socio-Demographic Profile of Teachers

Demographic Details	Frequency	Percent
Age-Groups		
20-30 years	32	12.8
30-40 years	136	54.4
40 years & Above	82	32.8
Gender		
Male	85	34.0
Female	165	66.0
Qualification		
Diploma	2	0.8
Bachelor's Degree	16	6.4
Master's Degree	140	56.0
Ph. D.	92	36.8
Classes Taught		
Grade1-Grade 12	53	21.0
Diploma	55	22.0
Bachelors and Masters	142	57.0
Teaching Experience		
Less than 5 Years	145	58.0
5-10 Years	61	24.4
10-15 Years	12	4.8
More than 15 Years	32	12.8
Type of Educational Institution		
Pre-Primary and Primary Schools	0	0
Secondary and Higher Schools	63	25.2
Colleges	163	65.2
Universities	24	9.6
Total	250	100.0

Source: Computed from Primary Data

Table-1 portrays the socio-demographic profile of the teachers of Punjab. This section is devoted to the personal information of the sampled respondents regarding their age, gender, qualification, classes taught, number of years they taught along with the type of educational institutions. Most of the respondents, i.e. 136 (54.4

per cent) teachers were in the age group of 30-40 years, 82 (32.8 per cent) teachers were in the age group of 40 and above category and 32 (12.8 per cent) teachers were in the 20-30 years age group. Among the participants, 165 (66 per cent) teachers were female and 85 (34 per cent) respondents were male. The majority of the teachers (56 per

cent) have post-graduate qualifications, followed by 36.8 per cent who have a doctorate, 6.4 per cent have bachelor's degree and 0.8 per cent have done diploma courses.

It is clear from Table-1 that approximately 57 per cent of faculty members have the experience to teach bachelor's and master's degree classes; 21 per cent and 22 per cent of the faculty respondents have taught Class 1 to Class 12 and diploma classes respectively. The faculty respondents (58 per cent) have teaching

experience of fewer than 5 years, 24.4 per cent have teaching experience of 5-10 years, 4.8 per cent have 10-15 years experience and 12.8 per cent of teachers have more than 15 years of teaching experience. The results of the survey analysis showed that around 9.6 per cent of the faculty had come from the different departments of the universities. About 65 per cent of the teachers were from the colleges, and approximately 25 per cent of teachers were from the secondary and higher secondary schools.

Table-2: Accessibility of technology by the Respondents

	Frequency	Percent
Preference of the Teachers		
Online Teaching	96	38.4
Regular Teaching	154	61.6
Devices Used		
Smartphone	112	44.8
Tablet	17	6.8
Laptop	121	48.4
Online Platforms		
Zoom	84	33.6
Google Classroom	49	19.6
You tube	24	9.6
Webex	15	6.0
Whatsapp	66	26.4
Cisco	12	4.8
Duration of Classes		
<1 hr/day	104	41.6
1-2 hr/day	58	23.2
2-4 hr/day	69	27.6
>4 hr/day	19	7.6
Teaching-Learning Tools		
Live Video Conferencing Tool	95	38.0
Social Media Live Streaming	26	10.4
Social Media Without Live Streaming	18	7.2
Audio Recorded Presentation	15	6.0

Online Teaching-Learning Apps	37	14.8
Videos made by Teachers	42	16.8
E-Platform owned by Institutions	17	6.8

Source: Computed from Primary Data

The findings of the survey given in Table-2 indicate that 61.6 per cent of the teachers preferred face-to-face interactive classes and 38.4 per cent of faculty members favoured online classes. The majority of the participants (48.4 per cent) used their laptops to teach, 44.8 per cent of faculty used their smartphones to take classes and 6.8 per cent of teachers used tablets to take online classes. It is clear from Table-2 that the majority of the faculty (33.6 per cent) used Zoom application, followed by WhatsApp (26.4 per cent), Google Classroom (19.6 per cent), YouTube (9.6 per cent), Webex (6 per cent) and Cisco (4.8 per cent) for imparting education amongst students. About 42 per cent of the respondents took classes for less than 1 hr/day, 23.2 per cent of teachers 1-2 hr/day, 27.6 per cent of faculty took classes for 2-4 hr/day and 7.6 per cent of teachers took more than 4 hr/day

classes as depicted in Table 2.

Several teaching-learning tools were adopted by the faculty to disseminate the knowledge to students as shown in Table 2. The results of the survey, as shown in Table 2 reveal that among the various tools, around 38 per cent of the teachers used live video conference tools to teach the students. About 16.8 per cent prepare videos first and send them to students and 14.8 per cent of the teachers use online teaching-learning apps respectively to impart the knowledge. Further, 10.4 per cent and 7.2 per cent of the teachers mentioned that they used social media live streaming and live streaming methods respectively to teach students. Audio recorded presentations (6.0 per cent) and methods of e-platforms owned by the educational institutions (6.8 per cent) were adopted by the teachers.

Table-3: Cronbach's Alpha Reliability Statistics

Cronbach's Alpha Coefficient	No. of Items
0.8778	24

Source: Computed from Primary Data

In the present study, the Cronbach Alpha coefficient was used to check the internal consistency/reliability of the statements asked in the questionnaire.

Table-3 indicates that 24 statements had the value of overall Cronbach Alpha coefficient of 0.8778, indicating good reliability.

Table-4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.857
Bartlett's Test of Sphericity	Approx. Chi-Square	3628.194
	df	276
	Sig.	0.000

Source: Computed from Primary Data

Table-4 shows the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. KMO value of the continuum is 0.857 (df=276, Chi-square=3628.194, Sig.=0.000), with

a great structural validity. The values of KMO hovered between 0.8 and 0.9 and are considered to be great to run factor analysis. Bartlett's Test with a p-value of 0.000, is significant (Field, 2009).

Table-5: Total Variance Explained

Components	Initial Eigen Values		
	Total	% of Variance	Cumulative %
1	5.113	21.303	21.303
2	3.706	15.440	36.743
3	2.060	8.582	45.325
4	1.728	7.201	52.526
5	1.524	6.351	58.877
6	1.281	5.339	64.217
7	1.138	4.744	68.960
8	1.082	4.508	73.400

Source: Computed from Primary Data

Extraction Method: Factor Analysis
 After KMO and Bartlett's tests, the next step was to apply factor analysis to aforementioned 24 statements. Table-5 displays that Eigen Value is greater than

1 and a total of 8 factors were extracted with the cumulative contribution rate of the variance reaching 77.64 per cent and 22.36 per cent of lost information content.

Table-6: Factor Analysis Results: Rotated Component Matrix

S. No.	Factors	Statements	Factor Loadings
1	Teacher's Characteristics	Availability of teachers to discuss the topic asked by the students	0.791
		You provide well-prepared, precise and summative lectures	0.732
		Easy to interact with students while teaching online	0.794
		Online teaching positively affected your teaching style	0.688
2	Technical Support by Institutions	Institutions provided proper guidance and operative manuals to teachers as well as students	0.611
		Proper Infrastructure provided by the institutions	0.587
		Institutions provide online portals to access materials	0.512

3	Supportive educational environment for students	Virtual presentations increase the learning of students	0.562
		Online classes reduce financial costs	0.467
		Students can attend online classes from any location	0.419
4	Social Support	Social and Physical distancing is possible due to online classes	0.840
		Interactive teaching between teachers and students	0.757
5	Life-long Learning	Acquired new teaching skills	0.824
		Increased Meta-cognitive Skills	0.764
6	Hedonic Motivation	Difficult to motivate Students	0.606
		Difficult to reach students belong to remote areas	0.490
		Difficulty in monitoring the progress of students	0.408
		Difficulty in maintaining discipline	0.372
7	Personal Problems	Require more time to prepare course material	0.841
		Difficult to teach the numerical subjects through the online mode	0.707
		Increased household-related chores	0.676
		Off-campus increased academic work also	0.594
8	Technical Problems	Problems related to internet connectivity	0.603
		Problems related to electricity	0.565

Source: Computed from Primary Data

Notes: Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 11 iterations.

Table-6 reveals that the rotated matrix of factor loadings for each statement is extracted from each rotated factor. In total 24 statements were presented to the respondents for their views/opinions. These statements loaded on 8 key factors and these factors reflected teachers' characteristics, technical support by institutions, supportive educational environment for students, social support, lifelong learning hedonic

motivation, personal problems, and technical problems during the online teaching-learning process.

Factor 1 has a high coefficient for the statements like availability of teachers to discuss the topic asked by the students, teachers provide well prepared, precise, and summative lectures, easy to interact with students while teaching online, and online teaching positively affected the teaching style. This factor has been labelled as a teacher's characteristics. Verma and Priyamvada (2020) revealed that some faculty members found the virtual process beneficial, and also had positive results. The teachers stated that teaching virtually is much easier on some of the topics, as the content was

presented in a more effective model to the students. Students could revisit the lectures if required.

Factor 2 has high factor loadings for statements like institutions providing proper guidance and operative manuals to teachers as well as students, proper infrastructure provided by the institutions and institutions providing online portals to access materials. Factor 2 was labelled as technical support provided by institutions and the attitude of teachers was positive towards this factor. Bao (2020) highlighted that institutions had been providing adequate support to faculties to impart knowledge during the virtual classes effectively and efficiently. The study also concluded that to improve the teaching-learning process, six institutional strategies must be followed. These strategies included preparation of some contingency plans for unexpected situations, imparting the online classes in smaller units, providing proper infrastructure facilities to teachers as well as students, focusing more on voice clarity, and promoting online as well as offline self-learning among students efficiently.

Factor 3 is named as a supportive educational environment for students, accounting for statements like virtual presentation increases the learning of students, online classes reduce financial costs and students can attend online classes from any location. Lepp et. al. (2021) highlighted those factors like maintaining interactive sessions with students, supporting the students, and discussing potential and practical implications with students in such emergencies by motivating both students and teachers positively.

Social support being Factor 4 has recorded items like social and physical distancing is possible due to online classes and interactive teaching between teachers and students. The

virtual classes made the teaching-learning experience more interesting and enriching for both teachers and students. Online mode is the only means to assure the effective teaching-learning process. During the time of the Covid-19 outbreak, virtual classes served as saviours and valuable additions to the formal education sector (Yagnik and Chandra, 2020).

Factor 5 labelled as life-long learning for teachers and registered the items like acquiring new teaching skills and increased meta-cognitive skills. This sudden online transition impacted the teachers professionally as well as personally in both positive and negative ways. The positive aspects covered the learning of new methods, modes, and platforms to teach students. This transition process increased the ability to plan, monitor, regulate and promote self-regulatory skills among the teachers (Verma and Priyamvada, 2020).

Factor 6 has high factor loadings for items like difficulty to motivate students, difficulty to reach students belonging to remote areas, difficulty in monitoring the progress of students, and difficulty in maintaining discipline among students. Therefore, this factor is labelled as Hedonic Motivation. Students often get bored when e-learning courses consist of long text. The lack of interest of students also affects the feedback in the form of multiple-choice questions as most of the questions are answered wrongly. To safeguard the students from this boredom it is necessary that the online courses should be interactive, dynamic & includes some fun. Mishra et al., (2020) mentioned that lengthy use of interaction virtually impacted both teachers and students. Even students who belonged to remote areas and with low socio-economic ground could not attend online classes because of the unavailability of resources. Some teachers still preferred the traditional method of teaching because

of difficulties regarding maintaining discipline in online classes and following up on the progress of students.

Factor 7 has high loadings for statements, namely requiring more time to prepare course material, difficulty to teach numerical subjects through online mode, increased household-related chores, and increased off-campus academic work. Mainly Personal Problems were considered in this factor. The swivelling from regular classes to virtual classrooms makes the teaching-learning gap more. The resistance to change amongst some of the teachers does not allow them to adapt to the online teaching-learning environment. Sareen and Nangia (2020) also stated that teachers faced many problems while taking online classes. This sudden transformation from regular mode to virtual classes raised many issues like lack of appropriate infrastructure availability, lack of in-service training, lack of knowledge regarding e-resources, and lack of efficacy.

Factor 8 has loaded the items like problems related to internet connectivity and electricity and labelled them as technical problems. When we talk about online learning, technical difficulties cannot be ignored and these difficulties are the main stumbling block in online learning. There are so many issues i.e., operating system, browser, etc. These issues again add to a lack of interest. These issues can be solved by making online learning simple. One should keep in mind that learning does not require a high speed of connectivity. Attention should be paid to sound quality. Sakshi and Sharma (2020) also highlighted that virtual class's created anxiety and stress among teachers and students. Problems related to electricity and network connectivity hampered the flawless teaching-learning process, making the online mode not effective as face-to-face classes.

Thus, the impact of Covid-19 can be seen in the educational system. Virtual teaching is the need of the hour. However, every aspect has its certain merits and demerits. On the one hand, the virtual teaching-learning process did wonders to facilitate the process of imparting education, whereas, on the other hand, there are certain issues such as network connectivity problems, unavailability of resources, and existing infrastructure.

Educational Implications of the Study:

- Issues related to network connectivity create a hurdle in the effective teaching-learning process. It is difficult to reach the students who belong to remote areas. Proper technical, infrastructure support and training should be provided to students as well as teachers.
- It is really difficult to monitor the progress of the students and keep them involved during the teaching-learning process. Real-time monitoring systems should be developed and adapted as may be applicable to different levels.
- Teachers and students should be encouraged and administrators should motivate teachers and students for the proper implementation of online education.

Conclusion

Based on the above discussion, we can conclude that due to this sudden transition the demand for online learning platforms increased significantly. This transition has certain positive results like teaching the concepts more interestingly; enhancing the knowledge regarding online education, saving travelling time and cost, and increasing the meta-cognitive skills. This unplanned and rapid shift toward online learning

had created many challenges for the teachers too. The teachers admitted that lack of equipment and resources, a lack of training among teachers, a lack of social interaction, increased workloads, and also difficulty in explaining certain concepts. Moreover, technological issues also posed many problems. However, we can say that the blended form of education will certainly prove a boon to the education system. This transition promoted the concept of digitization and undoubtedly teachers

have learned to live and survive the complexities of online education. Even the Government supported and promoted technology-enabled learning for students so that the disparities that emerged in the education system should be buckled. At last, it can be concluded that we still have to go a long way to change the education system in virtual mode, whereas in the present circumstances, a blended form of education is one of the best options.

References

- Bao, W. (2020). *Covid-19 and Online Teaching in Higher Education: A Case Study of Peking University, Human Behaviour and Emerging Technologies*, 2(2) pp1-3. Available at: <https://doi.org/10.1002/hbe2.191>.
- Cronbach, L. J. (1951). *Coefficient Alpha and the Internal Structure of Tests*, *Psychometrika*, 16(3) pp 297-334.
- Field, A. (2009). *Discovering Statistics using SPSS*, Sage Publications.
- Lepp, L.; Aaviku, T.; Leijen, I.; Pedaste, M.; Saks, K. (2020). *Teaching during COVID-19: The Decisions Made in Teaching*, *Education Sciences*, 11 (2) pp 1-21. Available at: <https://doi.org/10.3390/educsci11020047>.
- Malhotra, N. K., Hall, J., Shaw, M. & Oppenheim, P. (2006), *Marketing Research: An Applied Orientation*, Pearson Education.
- Mishra, L., Gupta, T. and Shree, A. (2020). *Online Teaching in Higher Education during Lockdown Period of Covid-19 Pandemic*, *International Journal of Educational Research Open*, 1. Available at: <https://doi.org/10.1016/j.ijedro.2020.100012>.
- Sakshi, and Sharma, C. (2020). *Impact of Covid-19 and Digital Education on Teaching-Learning Process*, *ACTA Scientific Computer Sciences*, 2(9) pp 31-33.
- Sareen, S. and Nangia, A. (2020). *Online Teaching during Covid-19: Attitude and Challenges faced by School Teachers*, *International Journal of Disaster Recovery and Business Continuity*, 11 (1) pp 3012-3018.
- Thomas, C. J. (2020). *Coronavirus and Challenging Times for Education in Developing Countries*, Brookings. Downloaded from <https://www.brookings.edu/blog/education-plus-development/2020/04/13/coronavirus-and-challenging-times-for-education-in-developing-countries/>
- Verma, G. and Priyamvada. (2020). *Covid-19 and Teaching: Perception of School Teachers on Usage of Online Teaching Tools*, *Mukt Shabd Journal*, 9(6) pp 2492-2503.
- Yagnik, J. and Chandra, Y. (2020). *Teaching with Technology: Educator's Experience*, *Indian Journal of Educational Technology*, 2(2) pp 169-170