International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Adapting to Digital Classrooms: College Teachers' Experience with Online Teaching During Covid-19

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Abstract

During the COVID-19 pandemic, online teaching appeared as panacea for interrupted academic activities making it feasible to continue the teaching-learning processes while keeping the academic fraternity safe at their homes. The faculty members started adapting themselves to the changed virtual academic scenario having new modes of content delivery and teacher-student interaction. Therefore to assess the problems and challenges encountered by the teaching fraternity, the present study, attempted to study the attitudes of teachers of different higher education of Sikkim, towards online teaching and learning. The researcher employed convergent parallel mixed method, to explore the perceptions of college teachers, on the sudden shift of pedagogy from conventional face to face mode to the online mode of teaching. The researcher also attempted to assess the levels of attitude of teachers working in higher education institutions towards online teaching and learning and whether the attitudes differs with regard to different dimensions on online teaching and learning.

Keywords Attitude, Covid19, Higher Education Institution Teachers**,** Online Teaching And Learning

1. Introduction

The COVID-19 pandemic has had a cascading effect on all walks of life, Education sector is no exception. More than 1 billion and 575 million students in approximately 188 countries around the world are reported to have been affected by the closure of schools and universities due to preventive measures taken by countries against the spread of COVID-19 (UNESCO, 2020). The spread of COVID-19 has also caused fear, anxiety and other concerns to citizens in different parts of the world, including groups engaged in the educational process, such as children, teachers and parents (NCIRD, 2020). It was noted that the concerns of teachers engaged in the learning process were related to opportunities to conduct remote/online learning due to their level of knowledge and skills in the use of technology, access to technology and isolation at home (UNESCO, 2020). In addition, the demands to shift teaching to the online format have also been reported to have increased the level of stress and anxiety of teachers in different parts of the world (UNESCO, 2020).

To combat the COVID-19 outbreak in India, the Government imposed a nationwide lockdown, from March 24th 2020 wherein all the Schools and colleges was shut down. Although the state of Sikkim was amongst last state to be infected by the virus, however the effect on all sector was seen adversely in Sikkim too. Government of Sikkim also notified all the educational institutions to shut down and continue the teaching-learning process through digital mode to stop educational process to crash down.

Hence, the role of teachers is highly relevant since it is the teacher who serves as a teaching facilitator of young minds and directs them across online education. Therefore, this multiplied more responsibility on teachers, they not only had to, alter their instructional strategies and learn new virtual instruction pedagogy further the teachers had to prepare to engage the students in the virtual discourses too. Considering Sikkim's own distinct location, topography and level of technological advancement, it becomes imperative to understand and assess the opinion of teachers and their attitude towards online teaching is imperious for deciding the future ventures in this direction.

2. Review of Related Literature

At almost all HEIs, COVID-19 affected teaching and learning with two thirds of them reporting that classroom teaching has been replaced by distance teaching and learning. The shift from face to face to distance teaching did not come without challenges, the main ones being access to technical infrastructure, competences and pedagogies for distance learning and the requirements of specific fields of study (Marinoni et al. 2020). They found that COVID-19 has had an impact on international student mobility at 89% of HEIs. The type of impact is diverse and varies from institution to institution, but everywhere it has been negative. As far as research is concerned, 80% of H EIs reported that research has been affected by the COVID-19 pandemic at their institutions. Similarly, Aristovnik et al. (2020) found that, deficient computer skills and the perception of a higher workload prevented teachers from perceiving their own improved performance in the new teaching environment. Students were mainly concerned about issues to do with their future professional career and studies, and experienced boredom, anxiety, and frustration. Similar findings revealed in the study conducted by Khandelwal et al (2021), they found that there is a positive or high impact on higher education and technical education. The study concludes that, current COVID-19 situation is giving the mental stress to the parents, teachers, and students. In the similar study conducted by, Kapasia et al (2020), they found that Students have been facing various problems related to depression anxiety, poor internet connectivity, and unfavourable study environment at home. Students from remote areas and marginalized sections mainly face enormous challenges for the study during this pandemic.

The sudden shift from classroom learning to digital learning has also created the digital divide between rich and poor (Banerjee 2020) and argues that the digital divide negatively affects the enrollment in higher education Institutes and lack of digital access further pushes out students from colleges and universities in India. Similar findings was reported in the study by Khandelwal et al (2021) that the impact shall be much higher side for those belongs to the lower income group. On the other hand, the impact shall be negligible for the higher income group.

However, with the help of already established distance education and digital transformation in Gulf Cooperation Council education system, institutions of higher education in the GCC, were able to successfully and effectively implement online learning, in their response to COVID-19 (Benaouda & Brahimi 2020).

3. Theoretical Framework

The present study intends to understand the paradigm shift from conventional mode of teaching to the online mode of teaching, which was primarily emerged as an alternative method to save the education system to crash down. Harasim in her theory online collaborative learning (OCL) focused on collaborative learning, knowledge building, and Internet use as a means to reshape formal, non-formal, and informal

education for the Knowledge Age. Similarly, in the present study we can trace the importance of internet or online teaching which served as rescue for the teachers to undertake their instructional pedagogy. The teacher played a vital role in the educational discourses, as they were to remain self-motivated and also make the students engaged and motivated, throughout the pandemic which OCL theory suggest the same, wherein the teachers plays an important role not as a fellow-learner, as a link to the knowledge community, or state of the art in that discipline.

According to TAM theory, a number of factors influence their decision about how and when they will use it. The factor perceived usefulness as given by Davis, is one such reason for the need to adopt technology by the College teachers as their instructional strategies to enhance their digital teaching and learning process during pandemic. Since the authority believed that digital technology was the only reliable method for the content delivery and for successful continuation to impart education amidst COVID pandemic. Here the factor for perceived ease-of-use suggested by Davis comes into the picture wherein he states that the positive attitude towards the use of technology is developed if the technology is easy to use, then the barriers conquered. Therefore, after examining different theories, it has been observed that OCL and TAM are reliable in the context assessing the online teaching and learning.

4. Methodology

The purpose of this study was to explore the Attitude of college teachers towards online teaching and learning amidst COVID-19. The study employed mixed method research wherein the qualitative and quantitative data were collected independently and in parallel with each other. Quantitative data was collected through questionnaire using google form and has been analysed using SPSS software and the qualitative study used semi-structured interview and the analysis was done, categorizing it into different themes based on the responses received.

4.1 Research Design

The study has used Convergent parallel mixed method design. The convergent-parallel approach is a concurrent approach and involves the simultaneous collection of qualitative and quantitative data followed by converging and subsequent interpretation of quantitative and qualitative data. Quantitative and qualitative data are collected and analysed separately and then put together, for example they may be compared and contrasted, looking for similarity, difference and complementarity (Louis cohen, 2018).

4.2 Tools of the Study

For the collection of quantitative data, the study has used a standardized tool, “Attitude Scale towards Online Teaching and Learning for Higher Education Teachers” constructed by Sangwan and Punia (2020).

4.2.1 Descriptive of the tools

This standardized tools contains 28 items out of which 8 statements was negative, and 20 statements was positive, and are sorted into 4 dimensions. Item analysis was carried out using t-value and r-value. The scale consist of both positive and negative statements. All the items were framed on five point Likert scale. In case of positive statements, strongly agree, agree, agree, neutral, disagree and strongly disagree were scored as 5, 4, 3, 2, 1 respectively while reverse coding was done for negative statements.

Those who scored more than 118 & above were considered as highly favourable towards online teaching and learning amidst pandemic, and those who scored between 111to117 were considered favourable towards online teaching and learning, those who scored 95 to 110 were considered to have a neutral attitude towards online teaching and learning. Those who scored 88 to 94, were considered to have

unfavorable attitude towards online teaching and learning. Finally 87 and below were considered as the highly unfavorable with regard to online teaching and learning.

In the tool developed by Sangwan et.al, each dimensions are explained briefly, the appreciation for online teaching represents learning measures appreciation and acceptance about online teaching and learning. The second dimension, Responsiveness towards online Education are related with the responses of a teacher towards online teaching and learning. Proficiency in handling online teaching represents the ease of teachers in managing online education. And knowledge of technological reforms are related with the knowledge of teacher about the various tools for online teaching.

4.2.2 Reliability and Validity of the tools

Reliability concerns the extent to which a measurement of a phenomenon provides stable and consistent result (Carmines & Zeller, 1979). The reliability of scale for present tool was determined by using Cronbach Alpha value (0.88) and split-halt correlation (0.82).

Validity explains how well the collected data covers the actual area of investigation (Ghauri and Gronhaug, 2005). Psychometric scale analyses have shown that this scale is valid, reliable and thus can be used in the evaluation of teachers 'attitudes towards online teaching and learning.

4.3 Population and Sample

The population of the study was teachers from Higher Education institution from the state Sikkim. In order to assess the attitude of College teachers towards online teaching and learning the sample of 121 teachers from different Higher Education of Sikkim i.e. Sikkim Govt. Degree College, Burtuk, Nar Bahadur Degree College Tadong, Sikkim Govt. Degree College Namchi, Sikkim Govt. B.Ed College Soreng, Sikkim Institute of Science and Technology, Sikkim Manipal Institute of Medical Sciences, Sikkim Govt. Degree College Gyalshing.

Demographic Profile of Respondents

Baseline Demographics	N	Percentage
Gender		
Male	59	48%
Female	62	52%
Type of College		
Public	99	81%
Private	22	19%
Age		
Below 30 years	38	31%
31 – 40 years	69	57%
Above 40 years	14	12%
Subject Background		

Arts	36	30%
Commerce	16	13%
Science	20	17%
Engineering	15	12%
Teacher Education	16	13%
Medical	18	15%
Teaching Experience		
Below 5years	67	55%
6-10 years	25	21%
Above 10 years	29	24%

The study has employed quota sampling technique. Like a stratified sample, a quota sample strives to represent significant characteristics of the wider population and sets out to represent these in the proportions in which they can be found in the wider population.

4.4 Procedures for Data Collection

In the present study, for quantitative data collection a structured questionnaire was prepared in a google form and the google link was shared to the teachers of different Higher Education of Sikkim on 25th March 2020. The link was shared through email and Whatsapp.

For the qualitative data collection, a semi- structured interview was conducted to 3 College teachers of each subject background. The interview was conducted through telephonic medium which lasted for atleast 15 to 20 minutes. The questions for the interview was open-ended which was basically related to the opportunities and challenges of online teaching and learning during COVID-19 pandemic.

5. Data Analysis and Interpretation

Data collection was followed with a complex procedure of data analysis. The quantitative data analysis used SPSS package. And for the qualitative analysis, thematic analysis has been employed by categorizing all the responses into different themes.

The quantitative data analysis has used the descriptive statistics i.e. mean, standard deviation and histogram to describe the data set. The inferential statistics t-test and Analysis of variance test, has been employed to show whether there exist any kind of differences between the different variables (gender, age, teaching experience, subject background and types of College) and the different domains of online teaching and learning namely (appreciation for online teaching and learning, responsiveness towards online education, proficiency in handling online teaching and knowledge of technological reforms). Kolmogorov Smirnrov Test and Shapiro-Wilk Tests has been employed to examine the normality of the sample data.

The qualitative analysis of the data collected through semi-structured interview has been analyzed through thematic analysis. In this study, the semi-structured responses received from the college teachers were

audio recorded and the interviews were first written down or transcribed thoroughly and then line by line coding was done. The aim of extracting all the essence and meaning of the original interview the entire process was done by the researcher.

5.1 Descriptive Analysis

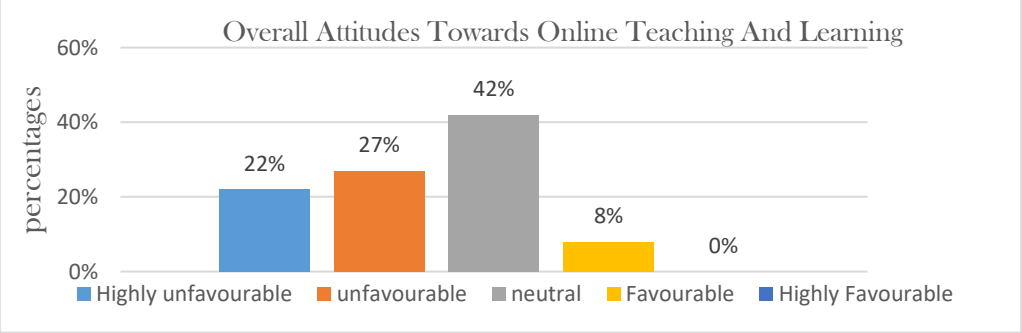
5.1.1 Overall levels of College Teachers' attitudes towards Online Teaching and Learning amidst COVID-19

The composite score of the responses of college teachers collected through the Attitude scale have been classified into different level of attitude towards online teaching and learning based on the range of scores described below.

Table 5.1
Overall levels of College Teachers' attitudes towards Online Teaching and Learning amidst COVID-19

Score Range	Frequency	Percentage	Interpretation
118 and above	0	0%	Highly Favourable
111 to 117	10	8%	Favourable
95 to 110	51	42%	Neutral
88 to 94	33	27%	Unfavourable
87 and below	27	22%	Highly Unfavourable
Total	**121**	**100%**	

Figure 5.1
Overall levels of attitudes of college teachers towards online teaching and learning



It is evident from the above figure that maximum number (42%) of teachers from different Colleges of Sikkim took a neutral stance in regard to online teaching and learning. While 27% of the teachers are not in favour of online teaching and learning, 22% of the teachers highly unfavourable in regard to online teaching and learning. Very negligible proportions of the teachers were found to belong in the categories of favourable and highly favourable with respect to online teaching and learning.

5.3 Inferential Analysis

The inferential statistics t-test and Analysis of variance test, has been employed to show whether there exist any kind of differences. Kolmogorov-Smirnov and Shapiro-Wilk tests to examine the normality of

the test.

5.3.1 Assumption about the Nature of Quantitative Data

The data should be normally distributed before we proceed further for the parametric treatment of our collected quantitative data. To test the normality of the data, the Kolmogorov-Smirnov and Shapiro-Wilk tests for normality have been performed in SPSS. The results of those tests have been presented below.

Table 4.7

Results of K-S Test and Shapiro-Wilk Tests examining the normality of the sample data

Variables	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Online Teaching and Learning	.071	121	.200	.989	121	.450

The Kolmogorov-Smirnov test for attitude of College teachers towards online teaching and learning amidst COVID-19 showed that the variable is normally distributed, D (121) = 0.071, p = 0.200.

The Shapiro-Wilk test for attitude of College teachers towards online teaching and learning amidst COVID-19 showed that the variable is normally distributed, W(121) = 0.989, p = 0.450.

Therefore the null hypothesis for the above two test of normality, for the data collected through attitude towards online teaching and learning scale are normally distributed. More precisely, the population distribution from which the sample was drawn was found to be normal for the variables, namely attitude of college teachers towards online teaching and learning amidst COVID-19. This indicates that the quantitative data concerning the variables attitude towards online teaching and learning are eligible for parametric treatment, which means that the data can be analysed through parametric statistics such as mean, standard deviation, t-test and ANOVA.

Hypothesis One

Ho1: There is no significant difference in the attitude of college teachers towards online teaching and learning with respect to their gender.

To test this hypothesis, an independent sample two-tailed *t*-test has been conducted. The result of the test has been given below.

Table 5.8

Results of t-test examining the difference in the attitude of college teachers towards online teaching and learning with respect to their gender.

Dimensions of online teaching and learning	Male(59)		Female(62)		t (119)	p
	M	SD	M	SD		
Appreciation	35.73	4.567	35.27	4.361	.560	.576
Responsiveness	19.68	3.334	19.50	3.308	.295	.769
Proficiency	20.41	4.519	20.47	4.164	-.077	.939
Knowledge	19.93	2.965	18.45	2.634	2.907	.004
ATTITUDE_OTL	95.75	11.062	93.69	9.920	1.075	.284

The results of an independent sample two-tailed *t*-test revealed that, there is no significant difference between the two groups in the other three domains except for the domain knowledge of technological

reforms. There is a significant difference between the two groups in the domain knowledge of technological reforms (t (119) = 2.907, p = .004). But the scores for all the four domains collectively indicated that there is no significant difference (t (119) = 1.075, p = 0.284) in the attitude of College teachers towards online teaching and learning with respect to their gender. Since it was observed that the t-value 1.075 was not significant at 0.05, therefore we retain the Null hypothesis.

Hypothesis Two

Ho2: There is no significant difference in the attitude of college teachers towards online teaching and learning with respect to the type of College.

To test this hypothesis, an independent sample two-tailed *t*-test has been conducted. The result of the test has been given below.

Table 5.9

Results of t-test examining the difference in the attitude of college teachers towards online teaching and learning working in public and private college

Dimensions of online teaching and learning	Public(99)		Private(22)		t (119)	p
	M	SD	M	SD		
Appreciation	35.67	4.274	34.73	5.212	.895	.373
Responsiveness.	19.89	3.200	18.23	3.518	2.163	.033
Proficiency	20.80	4.206	18.82	4.563	1.966	.052
Knowledge	19.29	2.886	18.64	2.888	.965	.337
ATTITUDE_OTL	95.65	10.070	90.41	11.537	2.148	.034

The results of an independent sample two-tailed *t*-test revealed that except for the domain responsiveness towards online Education, there is no significant difference between the two groups in other three domains. There is a significant difference between the two groups in the domain responsiveness towards online education (t (119) = 2.163, p = .033). There is a significant difference between the two groups collectively. The mean score for public and private college indicates that teachers of public college showing more favourable attitude than the private college towards online teaching and learning. Therefore, Null hypotheses that, the attitudes of College teachers towards online teaching and learning with respect to types of College was not retained..

Hypothesis Three

Ho3: There is no significant difference in the attitude of college teachers towards online teaching and learning with respect to their age.

To test this hypothesis, a one-way ANOVA has been conducted. The result of the test has been given below.

Table 5.10

Results of one-way ANOVA examining the difference in the attitude of college teachers towards online teaching and learning with regard to their age.

Dimensions of online teaching and learning	Below 30 Years (38)		31-40 Years (69)		Above 40 Years (14)		F (2, 118)	p
	M	SD	M	SD	M	SD		
Appreciation	34.82	4.626	35.64	4.318	36.64	4.634	.943	.392
Responsiveness	19.47	3.011	19.74	3.385	19.14	3.860	.219	.804
Proficiency	20.39	4.353	20.62	4.339	19.64	4.378	.299	.742
Knowledge	18.92	2.898	19.23	2.870	19.57	3.081	.289	.749
ATTITUDE_OTL	93.61	11.110	95.23	10.327	95.00	10.160	.297	.743

The results of the one-way analysis of variance showed that there is no significant difference between the three groups in all other domains. The scores of all four domains collectively showed that there is no significant difference (F (2, 118) = 0.297, p = 0.743) in the attitude of college teachers with reference to their age. Therefore we fail to reject the formulated Null hypothesis since we did not find any significant difference between the variables.

Hypothesis Four

Ho4: There is no significant difference in the attitude of college teachers towards online teaching and learning with respect to their teaching experience.

To test this hypothesis, a one-way ANOVA has been conducted. The result of the test has been given below.

Table 5.11

Results of one-way ANOVA examining the difference in the attitude of college teachers towards online teaching and learning with respect to their teaching experience.

Dimensions of O.T.L	Below 5 Years (67)		6-10 Years (25)		Above 10 Years (29)		F (2, 118)	p
	M	SD	M	SD	M	SD		
Appreciation	35.34	4.663	34.76	3.876	36.48	4.380	1.096	.338
Responsiveness.	19.52	3.244	19.76	3.086	19.59	3.727	.046	.955
Proficiency	20.69	4.537	19.92	4.881	20.31	3.274	.299	.742
Knowledge	19.33	2.899	18.60	2.345	19.31	3.285	.619	.540
ATTITUDE_OTL	94.88	11.024	93.04	9.736	95.69	10.057	.447	.641

The results of the one-way analysis of variance showed that there is no significant difference between the three groups in all the domains. The scores of all four domains collectively showed that there is no significant difference F (2, 118) = 0.447, p = 0.641) in the attitude of college teachers with reference to their age. Since our p value is above the significance level 0.05, therefore we fail to reject the formulated null hypothesis since there is no significant difference between the variables.

Hypotheis Five

Ho5: There is no significant difference in the attitude of college teachers towards online teaching and learning with respect to subject background.

To test this hypothesis, a one-way ANOVA has been conducted. The result of the test has been given below.

Table 5.12

Results of one-way ANOVA examining the difference in the attitude of college teachers towards online teaching and learning with respect to their subject background.

Dimensions of O.T.L.	Arts (36)		Science (20)		Commerce (16)		Engineering (15)		T.E (16)		Medical (18)		F (2, 118)	p
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD		
Appreciation	34.9	5.0	34.5	5.58	35.3	3.26	37.2	3.00	36.3	3.13	35.6	4.76	.830	.531
Responsiveness.	19.6	3.6	19.9	2.78	20.2	3.73	20.2	2.60	19.5	2.85	18.0	3.55	1.08	.375
Proficiency	21.0	4.3	21.7	3.57	20.5	4.27	20.6	4.96	20.4	3.16	17.7	4.73	1.96	.089
Knowledge	18.9	3.1	19.5	3.45	18.1	2.09	21.1	2.47	18.8	2.19	18.8	2.63	2.07	.073
ATTITUDE_OTL	94.5	11.4	95.7	11.5	94.1	10.4	99.2	8.8	95.0	5.7	90.2	11.3	1.25	.289

The results of the one-way analysis of variance showed that there is no significant difference between the six groups in all the domains. The scores of all six domains collectively showed that there is no significant difference ($F\ (2,118) = 1.252$, $p = 0.289$) in the attitude of college teachers with reference to their subject background. Since our p value is above the significance level 0.05, therefore we fail to reject the formulated null hypothesis since there is no significant difference between the variables.

5.4 Analysis of Interview Responses

1. Shifting to digital mode is a boon or Bane for pedagogy.

The college teachers opinion has been categorized into three themes, these are Agree, disagree and partially agree.

It was observed from the interview that, majority of the teachers have given their neutral opinion on shifting to digital mode is infact a boon for pedagogy. They consider that digital pedagogy is boon provided every related infrastructure is up to date. About 50% of the respondent subscribe to this view. Justifying the same Assistant professor from Soreng, B.ed College opines that,

"*Digital pedagogy is boon, because we are in the 21st century and at some point of time in future, we have to shift, from the conventional mode to ICT mode, we cannot stop it from happening since everything is technology oriented nowadays. I believe this ongoing pandemic actually worked as a catalyst to mainstream the same. Why bane is because we are living is such society where there is a great digital divide. Let alone leave digital access, there are regions where there is no access to the electricity. In such*

cases I feel it is not at all a boon."

Therefore majority of the teachers conforms to the view point that digital pedagogy can be wonder if our state Sikkim is digitally well equipped and the digital divide is addressed effectively.

However some of the college teachers have bluntly deferred to this statement, they do not agree with the view that digital pedagogy is a boon. Illustrating this view, Assistant Professor from the public college opined that

"*I don't feel that shifting to digitalization of education is a boon. Undoubtedly, as a teacher it was a great opportunity for us to explore the new fields of teaching method and also it was easier and convenient mode for us. However, I felt that I lost a human touch with my students. Face to face interaction in a class was much more helpful for me as a teacher to understand my teaching feedback. Through online teaching, the affective and psychomotor domains of learning were neglected totally. Let's say the approaches of digitalization of education is helpful for teachers but when it comes to delivering it to the students, the offline and also the environment matters a lot."*

These group of teachers shows their favour towards conventional teaching and learning. The traditional or the conventional mode provides a conducive as well as competitive atmosphere to the students.

Negligible number of the participant agreed that the digital mode is infact a boon for the pedagogy. Representing this view, Assistant Professor from Sikkim government college, Namchi expresses that "*In the conventional mode resources were limited we could only refer to the books and we could use only boards however, the pedagogy shifted to digital mode, it widened the accessibility of resources to the students".*

This group of participant believes in drawing out the broader benefits of digital technology and enhancing their digital teaching learning process.

2. Balancing professional and personal duties during COVID-19 Pandemic

It was a challenging task for the majority of the participants to strike a balance between the professional and at the same time the personal duties. Espousing this view, a lady Assistant Professor from District Institute of Education and Training, asserted that

"*It was really difficult for me, I was really stressed both professionally as well as at the personal level. My health deteriorated because I was multitasking whole time, I had to meet up the household chores, tutors both my daughters and teaching online. My energy drained, physically and mentally I was not keeping well. I really did not like this online mode of teaching. Moreover I did not enjoy teaching."*

Sharing a similar viewpoint, Assistant professor from private Medical College namely, Sikkim Manipal Institute of Medical Sciences strongly expresses that "*In my situation, our work was bit overloaded since we had to manage both clinical and teaching simultaneously. We were assigned COVID duties too along with the teaching and other clinical task. So it was bit overwhelming for us."*

Work from home concept came into existence during the COVID-19 Pandemic for the non-medical fields, which was actually a need of an hour at that point of time. However, it added to the responsibility upon teachers in multitasking various inevitable obligations, then situations demanded. Therefore it was proven stressful for the teachers to manage the both duties simultaneously.

About one-third of the teachers who participated in the study found it convenient for them to manage both professional and personal duties during COVID-19 Pandemic. Justifying their responses, Assistant professor from Sikkim Institute Of science and Technology mentions that,

"*Since I believe self-discipline is important in such situations which I maintained thoroughly, I took all my classes as per the schedule provided. I can always record videos and can also use the same video for*

the next session. I got plenty of time to spend with my family when I was working from home."

Very few teachers believe that if an individual can properly manage the time schedule of the day and follow it thoroughly, then they can easily keep the stress and tensions, at bay.

3. Academic performance of students during Pandemic

The responses can be categorized into, undoubtedly performed well as student adapted unethical means, improved performance with additional e-sources of knowledge, and Teacher failed to achieve objectives of Open Book Examination.

The overwhelming majority of teachers expresses their disappointment with regard to the process of examination, even though the students performed extremely well score wise, however they expressed their awareness of students involving into unfair means during online exams, they hoped that if only there was a proper monitoring procedure, then only the examinations could be considered genuine. Further there seems to be a great variation in the performance of the student pre and during Pandemic time. Representing this view, Assistant Professor from Sikkim Govt. Science College, Chakung expresses his view that,

"*Students scored well, but I am aware the reason for their good scores, as I got many answers copied blatantly from the internet, anyhow we had to give markings based on their writings. Only if we could monitor the exam online, we could achieve our objectives."*

In the similar view, Assistant Professor from Sikkim Institute of Science and Technology expresses that *"The students scored well and I am aware the reasons for such scores. The score during the pandemic was significantly very high as compare to normal days, it can be because we were not able to maintain the integrity of students during online examination."*

Sharing a similar viewpoint, assistant professor from Sikkim Govt. Degree College, Burtuk, explains that, *"Well, if you ask me the achievement in marks, definitely they scored really well, students crossed the SGPA of 7&8, however I think only if we could monitor them online properly then we could guaranteed their honesty and then I could also say that they performed well. Since examination was online based, we could not make out whether they wrote their exams honestly or not. Definitely I could see change in their achievement."*

Assistant professor from SIST, Govt. of Sikkim expresses his concern over the honest students getting demoralised with the culture of online examination scam, he says that

"*The toppers students do not cheat as they are morally obligated, they do not cheat but the students who are no attentive in class starts scoring good marks. So it questions the toppers conscience and they feel demotivated. Along the way the quality of education is degraded a lot."*

The overall performance scoring came out to be really good, however there was no proper monitoring system to conduct these online examination. Consequently, it allowed students to indulge in the unethical means to carry out their examinations and therefore, quality of education is getting compromised.

Very few teachers were positive about the performance of their students. The improvement in their answer writing could be attributed to the accessibility of, plethora of information's from the varied e-sources. The justification to support this viewpoint, Assistant Professor from Sikkim Govt. Degree College, Namchi *"The students performed well in examination, their scores and good enough because I believe that it is because of the additional knowledge from other e-platforms."*

Sharing similar justification, Assistant Professor from Sikkim Govt. B.ed College, Soreng mentions that, *"B.ed trainee had to undergo internship online this time. I am really satisfied with their performance and the hardwork and dedication they invested in preparing a lesson. I could see trainees applying the required skills and techniques appropriately and I am actually impressed by their performance."*

The performance of students has improved and the teachers are infact impressed by their performance. The reason for this could be attributed to the access of various e-contents which has enhanced their knowledge. The students seems to be more delligent with their work and displayed great dedication towards their work.

The most interesting response from one of the Assistant Professor from Sikkim Govt. B.Ed College Soreng, explains that,

"If we check the scores of the students they did score really high in online examination. Myself as a evaluator was little lenient while correcting the papers considering the COVID situation and the pressure students had to undergo. Further, Open Book Examination or take home exam was not anticipated by teachers as well as students. The major objectives of Open Book Examination is to develop critical and analytical thinking in learners however I think we as a teacher lagged in this aspect as we were not trained or we were not aware of any such examination. Therefore I think we failed to achieve the objectives of Open Book Examination."

Since the examination was to be conducted in an online mode, the teachers should be trained to develop critical questions which could fulfil the objectives of open book examination.

4. Providing practical lessons to students.

The teacher's responses could be categorized into three themes namely, Conducting practical lessons through digital/online mode, calling students to the colleges in micro groups and students were deprived of practical lessons.

The majority of the responses centered on conducting their practical lessons through online or digital mode. About 50% of the teachers shared this view point. Representing this opinion, Assistant Professors from Sikkim Manipal Institute of Medical Sciences, a private College explains that, *"We carried out various aspects of teaching mode, for instance live demonstration classes, and shared pre-recorded videos to the students."*

Assistant Professor from Sikkim Institute of Science and Technology shares similar views, that "*Software prepared by IITS, where the students can have access to virtual labs. Virtual labs had proven the boon for technical colleges during the time of online mode of teaching."*

Digitally conducting practical lessons was the only rescue in situations like Pandemic, while keeping into consideration the COVID-19 protocols. Even though it is not as effective as that of offline classes, however the students will atleast achieve something.

Some of the teachers expressed that to successfully deliver the practical lessons to their students they called their students in micro groups. Defending this view, Assistant Professor from Sikkim Government College, Burtuk, mentions that, *"Considering the large number of students, we used to call students in small groups in alternate days for the practical lesson."*

Also sharing similar view, Assistant Professor from Sikkim Manipal Institute of Medical Sciences, expressed that *"We formed a micro group among the students and asked them to come in assigned dates and imparted the practical lesson."*Conducting practical lessons by forming micro groups among the students in alternate days is also the solution to combat the issue.

Very few expressed their regret, for not being able to conduct the practical classes to their students, mostly because of the inaccessibility of virtual labs. Explaining this view Assistant Professor from Sikkim Govt. Science College, expresses his disapointment by saying that,

"Unfortunately, this was the major setbacks in the teaching process, we were unable to conduct the practical classes. We were asked to isolate at home during pandemic and there was no point in accessing

college labs, also technology wise colleges in Sikkim are not properly equipped and therefore inspite of the network connectivity we could not carry out our practical teachings."

The weak infrastructure could act as a hindrance in the life of students process of educational discourse. The inaccessibility of the required virtual labs, deprived the students to undergo their practical lessons.

5. Challenges encountered during the initial phase of Pandemic

The responses could be recorded as, acquainting self and students with new method of teaching, and establishing good network connectivity.

The majority of the responses revolved around their apprehension towards the new ways of teaching, complete transition from chalk board to online /digital mode. To advocate this view, Asisstant Professor from Sikkim Govt. B.ed College, Soreng

"COVID situation was alien to every walks of life, therefore everyone was in panic mode. Since teaching is an art, we need to have a calm mind. So in this situation I could not give 100 percent to the teaching learning process. As we were not equipped with ICT mode of teaching, difficulties in managing online classroom situations, less number of students attending the classes."

Another Assistant Professor sharing similar viewpoint, mentions that,

"I was not aware with the techno pedagogy aspects, so I seeked help from my other colleagues for the same. The power cut and network issue was the major issue. The attendance was very low, it was challenging for us to keep the students in the class active mentally and physically."

Apprehensions over the new methods of teaching which is the techno-pedagogy, distressed the teachers. Assembling students in online mode was another major challenge. Unlike offline classes, immediate feedback and responses from the students in the online class were lacking from students side.

However very few teachers, were agitated because of the poor network reception. Justifying this view, Assistant Professor from Sikkim Govt. College, Namchi expressed that,

"Internet connectivity was the major issue. I had to shift to my maternal village which had better network reception than my own home, to take classes. Here again the COVID transmission was at peak so I had to stay indoors whole time, so it was kind of monotonous phase for me."

Poor internet connectivity is also the major challenge which teachers as well as students has to encountered during the online mode of teaching learning process.

6. Coping strategies with the sudden shift from face-to-face teaching to digital mode of teaching

The responses could be categorized into adjusting to the new normal and keeping self and students motivated.

Most of the responses centered around adjusting oneself to the new normal, which basically means, to adopting the online/digital mode of pedagogy, upgrading self to the new technology. To uphold this view, Assistant professor from Sikkim Govt. B.ed College, Soreng mentions that,

"Definitely, it was really difficult for me to adjust to the new ways of teaching. Learning new things has always intrigued me, and pandemic demanded us to change our old ways of imparting education, hence I attended many webinars on how to go about the digital teaching so that I could enhance my lesson delivery."

The new normal for educational discourses basically means adopting the online mode of teaching and learning process, where physical presence of an individual is not observed. COVID-19 compelled everyone to adjust with the new normal.

Some of the teachers cope up to this situation by self-motivating and simultaneously motivating their students. When negativity is at its peak, spreading positivity all around is one of the challenging task one

can take. Espousing to this view, Assistant Professor from SIST, Govt. of Sikkim, expresses that,

"Keeping myself motivated is the challenging aspect, since during online classes we could not see the reaction of the students and they responded very rarely. This really drained me but somehow I managed to make class interesting and was able to cope up."

Teaching and learning is a two way process, it is very essential for both the important individual engaged in the class discourses. Since pandemic compelled the educational activities to undergo online mode, therefore it was very challenging for teachers to remain self motivated to prepare for class and at the same time keeping ones students stay motivated somehow.

7. Strategies to enhance digital teaching

The responses could be categorized as Innovative teaching, and adopting flexible approach.

The majority of the responses centered around in adopting the innovative mode of teaching, wherein the teachers updated themselves with the new technology, and tried to apply in the online classes to break the monotony of the digital classroom. Justifying this view, Assistant Professor from Sikkim Govt. B.ed College, Soreng explained that,

"I enrolled myself into MOOCS online class and learned techniques and skills with regard to digital teaching. I explained my lesson through PPT slides. I adopted humour in my *teaching, to make my learners secure, in that situation it was very vital for my learners to feel secure and continue their class in calm environment."*

Sudden shift to online mode of education because of pandemic, demanded teachers to become more creative and innovative, in order to engage students and attract their attention in the classroom. The teachers explored many digital platform and some attended webinars to enhance their digital teaching which also benefitted the students.

However some of the teachers adopted a different approach to strategies their teaching to enhance their digital teaching. Looking for the feasible approach to make the online class effective, somehow was the only alternatives left for the teachers. Making teaching learning flexible to continue with the online class somehow to engage the students was the most feasible approach the teachers adopted. Espousing this view, Assistant Professor, from SIST, Govt. of Sikkim, mentions that,

"I did not keep my mode of teaching static i shared videos and ask them questions based on that videos. Also to provide them sense of achievement, I gave them assignments which they were supposed to me within a designated time."

8. E-platforms to conduct online classes

Upon asked, on what platforms they conducted their classes. The responses could be grouped as the Digital applications like google meet, zoom app, teachmint and Microsoft teams. They stated that these applications are most user friendly and they could accommodate their students easily.

All the responses of the participant of the study, centered on the digital applications to conduct their classes in online mode, justifying this view, Assistant Professor from Sikkim Manipal Institute of Medical sciences, quoted that, *"I conducted my classes through Microsoft* teams*, Google meet."*

Assistant Professor from Sikkim Govt. College, Chakung also mentions that, *"I conducted my classes from various applications like Teach mint, Google classroom, Zoom."*

The only reliable platform through which the teachers could conduct their online classes was the available digital applications. Since these applications are not only comfortable for the teachers but also it proved to be used conveniently by the students too.

5.5 Discussion

This study intended to study the perception of teachers on the online teaching-learning process during the COVID-19 lockdown period. The mixed-methods study examined perceptions of teachers keeping Sikkim's higher education in context. New insights come to the forefront while understanding teachers' perceptions about the new trend of digital teaching that emerged as a salvage for education system amidst pandemic.

The findings also revealed that there was no significant difference in the attitude of college teachers with respect to gender, types of college, teaching experience, age, different subject background. The apparent reason can be that, since all the teaching fraternity were involved in experiencing this venture of online teaching and learning collectively for the first time. It corroborates Chandwani, et. al (2021) findings that they also did not find any significant difference of gender, designation, types of college on teachers attitude towards online teaching and learning.

The results from the findings reflected that, majority of the college teachers expressed their dissentment towards the online mode of teaching. The cause may be attributed that since online teaching and learning can be effective only if all other parallel requirements for the same to operate is equipped properly. For instance the good network reception and uninterrupted electricity supply is the necessary elements which can suffice the online teaching learning. Considering the sudden introduction of online mode of teaching in Sikkim, the teachers were anxious and agitated with this shift from the conventional mode to the digital mode of teaching and learning. The similar results of the research (Gururaja, 2021) found that attitudes of most of the teachers does not favour the online teaching and learning mode. He gave a probable reason which can be, the average attitude of school teachers is not competent in digital learning skills. Further they may be not having previous knowledge about online teaching and also not very much comfortable with ICT skills. However the findings of chandwani, et. al (2021) shows inconsistency, that the teachers are having a positive attitude for online teaching and are interested to continue online teaching in future, when the situation gets normal. This makes it pertinent that the attitude of teacher have a significant bearing on their future ventures.

The College teachers of Sikkim perceived that, the COVID circumstances created the need for adaption to the emerging trends for survival and boosts up one's knowledge level about online tools and techniques. The college teachers of Sikkim had hard time getting acquainted with the new instructional method and teaching the same technicality involved, all over to their students. Considering the poorly equipped digital infrastructure in the state, it is viewed that our state is not yet ready to embrace such great shift of digital education. Mishra et. al, (2020) findings also support the similar view that, the University's preparedness was geared up in respect of techno-academic blending to a greater extent. Three relevant stakeholders, namely, academicians, technicians and students, started working in tandem to experience and utilize the transition. Students faced specific problems like connectivity and video issues due to the remoteness of their location and could not compromise the quantum of time required for machine learning.

For many college teachers of Sikkim, it was challenging and stressful to work, from home as they were obligated by both their personal and professional duties. The rationale for the same can be, work from home which emerged as a new concept during COVID, where the authority had given an alternate for many service provider including teachers to continue their teaching learning process in online mode. The similar findings from the (Purwanto, et. al, 2020 pp. 6240) quotes that "The teachers can lose work motivation. The reasons are quite diverse, for example the working atmosphere is not as expected, the atmosphere of the house is not like an office, and they can be distracted by many factors". Other study by

chandwani et. al, (2020) reflects that, it becomes difficult for married teachers to maintain a balance between family affairs, online schooling of kids and online teaching, especially when kids too remain at home in prevailing situation and the schools are also conducting online classes.

The major challenge while teaching online was the unstable network connection. If the videos and audios of the students were kept off, the connection remains more stable, but that mode of teaching seems to teach to a blank wall. Moreover, it was perceived that some of the students had not essential resources to join online; there it appeared like pushing the digital divide further. Comparably the findings from the Mishra et.al, (2020) reveals that level of understanding, lack of scope for meaningful interaction, the range for innovative teaching, and mechanical conduct of classes were the significant challenges reported by teachers in an online mode of teaching teachers were unable to read the face and mood of students, and thus difficult to change the teaching pattern. Besides, immediate feedback was not possible in this online teaching-learning transition phase, therefore lacked sense of motivation.

Hand on experience is a major aspect of any technical courses in higher education. Some Colleges managed to conduct their practical classes through virtual labs, while some asked the students to come to the college in micro groups to carry out the practical classes. However some college teachers expressed their disappointment for not being able to deliver the practical lesson adequately. The similar findings from, Mishra et.al (2020) showed that Some of the teachers expressed their grave concerns over the laboratory activities for the research scholars during the lock- down period and demanded simulation techniques in laboratory practical.

Further, plethora of available online teaching-learning tools like Zoom, Google Meet, Facebook and YouTube streaming available for both teachers and students were put to need-based use. It was an arduous task for them to use new instructional strategy. At the very onset of the lockdown, teachers intended to use Whatsapp, Email for imparting teaching however all these platform proved to be inadequate to deliver the lesson. Gradually, teachers and students both explored the other online platforms like google meet, Zoom, Microsoft teams, teachmint etc. Google meet was the most reliable among all these platforms.

Despite all the anxiety and challenges associated with the sudden shift from the conventional mode to online mode of teaching, the digital or online mode of teaching proved to be the most efficient mode of teaching in the time of such human crisis.

5.6 Conclusion

The outbreak COVID 19 pandemic had paralyzed every aspect of human life. Education sector was the hardest hit amongst many other. As an emergent rescue many higher authorities commenced for techno-pedagogy, or resorting to the digital teaching and learning. For many developed countries it was easier to shift their education digital since they are well equipped with skills and knowledge in this regard. However for a country like India and Sikkim in particular, it was definitely a paradigm shift in education. Initially anxiety and chaos hovered around on how to undertake such arduous task, but gradually the teachers and students started gaining pace over this new instructional task.

The pandemic on the other hand offers the government and the policy makers, the opportunity to correct the anomaly and inequality in the educational system in India. The pandemic has taught the institutions to have a contingency plan to deal with any COVID-19 like unanticipated situations, which are likely in future. We are in a race where conflicts and environmental disasters are bound to occur. This warrants the institutions a high level of preparedness so as to quickly adapt to alternative modes of instruction.

As the online teaching is in infancy stage in the country like, primarily caused by COVID-19 pandemic, there will be a strong need to strengthen the digital culture and infrastructure. The availability of digital educational resources and increasing expectations from educational institutions may also lead to the transformation of curriculum in cohesion with emerging technologies and restructuring of academic programmes and itineraries to learning resultant from online, open and blended learning delivery models, in future.

The pandemic also offers us the opportunity to rethink not only new digital, online, and pedagogical possibilities but also the basic purposes of education, and how renewed vision of education might be harnessed to develop more democratic and just societies.

REFERENCES

1. Aristovnik, A., Keržiˇc, D., Ravšelj, D., Tomaževic, N., & Umek, L. (2020, october 13). Impacts of the COVID-19 Pandemic on Life of Higher Education Students: A Global Perspective. Ljubljana, Slovenia. Retrieved from www.mdpi.com/journal/sustainability
2. Banerjee, J. B. (2020, August 7). Impact of Covid-19 Pandemic on Higher Education: A Critical Review. India.
3. Benaouda, B., & Brahimi, T. (2020, April 17). Coping with COVID-19: Higher Education in GCC countries. Effat, Turkey, Saudi Arabia.
4. Bhat, B. A. (2021). Role of Online Learning in the Era of Covid-19 for Higher Education in India. *ResearcgGate*, 11.
5. Brahimi, B. B. (2020, April 15). COPING WITH COVID-19: Higher Education in the GCC countries. Effat, Saudi Arabia.
6. Chouthaiwale, S. S., Yassin, A. A., Albaadany, H. Y., Alkamel, M. A., & Alajmi, Q. (2020). Online Testing in Higher Education Institution during the outbreak of COVID-19: Challenges and Opportunities. *Springer*, 15. Retrieved from https://doi.org/10.1007/978-3-030-67716-9_22
7. Dutta, A. (2020, May). Impact of Digital Social Media on Indian Higher Education: Alternative Approaches of Online Learning during COVID-19 Pandemic Crisis. *Research Gate*, 9. Retrieved from https://www.researchgate.net/publication/341606651
8. Jena, Pravat Kumar. (2020, May 31). Challenges and Opportunities created by COVID-19 for ODL: Acase study of IGNOU. *International Journal for Innovative Research in Multidisciplinary Field*, 6. Retrieved from https://ssrn.com/abstract=3691525
9. Kapasia, N., Paul, P., Roy, A., Saha, J., Zaveri, A., Mallick, R.,& Chouhan, P. (2020). Impact of lockdown on learning status of undergraduate and postgraduate students during COVID-19 pandemic in West Bengal, India. Children and Youth Services Review, 116, 105194.
10. Khandelwal, A., Kumar, A., & Saxena, S.(2021) COVID-19: Challenges to Indian Higher Education System.
11. Mbunge, E., Fashoto, S. G., Akinnuwesi, B. A., Gurajena, C., Metfula, A. S., & Mashwama, P. (2020, December 07). COVID-19 pandemic in Higher Education: Critical Role of Emerging Technologies in Zimbabwe. Eswatini, Eswatini, Zimbabwe. Retrieved from http://dx.doi.org/10.2139/ssrn.3743246
12. Mishra, L., Gupta, T., & Shree, A. (2020). Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. *International Journal of Educational Research Open*, *1*, 100012.

13. Sangwan, A., Sangwan, A., & Punia, P. (2021). Development and Validation of an Attitude Scale towards Online Teaching and Learning for Higher Education Teachers. *Techtrends*, *65*(2), 187-195.
14. Toquero, C. M. (2020, April 11). Challenges and Opportunities for Higher Education amid the COVID-19 Pandemic: The Philippine Context. General Santos, Philippines.
15. United Nations Educational, Scientific and Cultural Organization. (2020a). *COVID-19 impact on education data.COVID-19 education disruption and response. Paris, France:* The United Nations Educational, Scientific and Cultural Organization, UNESCO.