

Transformation of Chalk-talk to E-talk to combat Covid19 – A Study on teachers’ perception in kolkata

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ABSTRACT: Covid19 not only creates a drastic crisis for our health but also invites a lot of new challenges in our day to day activities. Education is an integral part of our life as the future of the nations is highly dependent on it. But, due to the exceeding spread of this corona virus, Govt. has to close all the educational institutions keeping the health of the students in mind. But shutting down the institutions can't be the reason of the closure of the students' learning. That's why teachers take a revolutionary step of converting the classroom to the e-classroom. But this transformation raises a lot of challenges not only to the students but also to the teachers. Still by accepting all of this challenges and short-comings teachers are continuing their jobs so efficiently keeping the fear of the pandemic in side. This paper mainly intends to analyze the issues and challenges faced by the teachers due to the online teaching during the pandemic period. A structured questionnaire in 5 point Likert scale is prepared to conduct a market survey within 288 teachers of various colleges and universities in Kolkata. Data thus gathered has been analyzed by using **Cramer's V correlation** is also conducted here to measure the association between various attributes. Further, this paper conducted a comparison between the e-learning & classroom learning by applying **Wilcoxon Singed Rank test** on basis of quality of teaching to judge the relevance of this link-up of the internet with the teaching process.

Key words - Covid19, Education, One sample Independent t-Test, Cramer's V correlation, Wilcoxon Singed Rank test etc.

I. INTRODUCTION

Covid19 not only create a dangerous threat to our lives but also affected our day to day activities a lot. The outbreak of corona virus pushed us to the complete lockdown for continuous 3 months in India without any advanced warning. Due to this sudden unfortunate situation Govt. decided to close all the educational institutions

without any certainty of reopening keeping the health of the students in mind. But Education is an integral part of our life and it is also the back bone of the nation. So the closure of the institutions can't be the reason for creating the obstacles in path of students' learning. Therefore the teachers took a revolutionary step to combat this situation through converting the classroom into e-classroom, though this step raises a set of new challenges not only to the students but also to the teachers. Still by accepting all the challenges they are continuously trying to give their best possible keeping the fear of pandemic in side. To adopt these new technique overnight teachers also faced a lot of issues to groom themselves as they were not so much familiar with the use of ICTs in teaching process during the pre-Covid period. In this period teachers tries to conduct their classes on various digital platform like- Zoom, Google meet, Whatsapp, Moodle and so on. They are also providing the notes to the students through the digital platform and trying to use 3d presentation or graphics to attract the students' attention and to restrain the students from the distraction of social media during the time of study. This new era of education opens up a new side of education system. In this time many institutions are organizing a lot of national and international webinars to spread the education to the learners without any geographical boundaries. Even many of the renowned universities are conducting a lot of free certification courses to enrich the learners with various kinds of knowledge. The present paper mainly intends to focus on the issues and challenges faced by the teachers due to new era of teaching – online education.

II. LITERATURE REVIEWS:

Ali. (2020) stated in his paper that other than resources, staff readiness, confidence, student accessibility and motivation also playing a very important role in ICT integrated learning. This paper proposes that teachers should use technology

and electronic gadgets to enhance learning especially during these crisis times. The study also proposed that online and remote learning has already becomes a necessity in times of lock downs and social distancing due to COVID-19 pandemic. It is also providing a strong platform for further research.

Bidawatka. (2020) analyses the critical factors which actually influences the use of technology in higher education by the teachers inside as well as outside the classroom and focussed on differing attitudes of teachers towards the use of technologies in education. It is also stated in the paper that in most of the countries in the world were going through Covid-19 pandemic and lockdown had made everyone realise that use of technology is not optional anymore - it is the one & only means to impart education in such situations where physical classrooms are not at all a possibility. The results also indicated an overall positive attitude of the teachers in using ICT, but a lot more needs to be done to overcome the challenges which the peoples are facing at present.

Nuere et al. (2020) analyzed the different reactions carried out by two universities, one of them is using online teaching methods and the other don't have any experience in it. It is stated in the paper that, Because of the subjects that are difficult to teach within this modality, research should be carried out on suitable technical tools to bring this modality closer to the reality of everyday's life in normal times. In these subjects, students have an essential role in the teaching-learning process, and it must be possible to carry on a better interaction. But, then also the problem seems to be controlled because they manage to do it from home, then also somebody may realize the situation is still weird and things go different. They finished with the quote of an anonymous lighting teacher from the nineteenth century: 'We learn better in contact with people than by their lessons'.

Aydin. (2012) reviewed Facebook in an educational environment and had made research on its use within education, which is relatively new from researcher's view point. This study is categorized into six sections: Facebook users; reasons people use Facebook; harmful effects of Facebook; Facebook as an educational environment; Facebook's effects on culture, language, and education; and the relationship between Facebook and subject variables. Moreover, this study compared the use of Facebook in Turkey and its use on a global scale. The paper concluded that there has been a serious lack of research on Facebook's use as an educational resource, as recent literatures reflects

how Facebook can be more readily be utilized in educational environment and the study ends with practical recommendations for researchers and educators for more further research.

Buabeng-Andoh et al. (2014) proposed that, the use of ICT to support their learning of the students was low. Students are habituated to use ICT to communicate with peers. Students' methods of assimilating knowledge were very much through teacher-centred teaching, even though they also had used ICT for collaborative and inquiry learning. Students in public schools perceived the use of ICT more valuable than students in private schools. Moreover, the study provided evidence that students in urban and rural schools differed in their attitudes in terms of the value perceived as well as the cost of ICT use, but there is no differences in attitude in terms of the expectancy of success were found to exist among the students in all locations.

Objectives of this study:

- To compare the e-learning & classroom learning on the basis of quality of teaching to judge the relevance of link-up of internet with the teaching process
- Assessing the challenges faced by the teachers to cope up with the digital world overnight due to shut down of educational institution during the time of pandemic
- To measure the effect of online teaching on maintaining the work-life balance of the teachers during the period of Covid19

Research Methodology:

- A pilot survey has been conducted on digital mode within 30 respondents to gather a basic knowledge about the issues & challenges faced by the teachers
- On the basis of the factors identified a structured google questionnaire has been prepared to conduct a market survey within 288 teachers of various colleges and universities in Kolkata.
- The time period of this study is 3 months i.e. Apr'20 to June'20
- Convenient sampling procedure is applied here to conduct this survey
- The data thus gathered has been analyzed by applying the Descriptive Statistics, One Sample independent t-Test & Chi- square test at 5% level of significance
- Cramer's V correlation & Phi- coefficient has also been used here to measure the association between the attributes

- Wilcoxon Singed Rank test (Paried) is applied in this study to make a comparison between e-learning & classroom learning on the basis of the quality of teaching

Data Analysis:

Comparison between e-learning & classroom-learning on the basis of teaching quality
 Calculation of Wilcoxon Singed Rank Test (Paired)
 [Where Level of significance (α) = 0.05]

Variables	Rate of e-learning on the basis of teaching quality & Rate of classroom-learning on the basis of teaching quality
2216	sum of positive ranks
30680	sum of negative ranks
256	n
16448.00	expected value
980.33	standard deviation
-14.52	z, corrected for ties
0.00E+00	p-value (one-tailed, upper)

Table: 1

H_0 : Population median difference = 0
 H_1 : Population median difference >1

Observation: On the basis of Z-value it can be observed that the calculated Z-value i.e. -14.52 doesn't belong within the range of Z-statistic i.e. -1.645 to +1.645 at 5% level of significance, so null hypothesis is rejected here. Again on the basis of p-Value it can be noticed that here the p-Value i.e. 0.00E+00 is less than the Value of α i.e. 0.05, therefore null hypothesis is rejected here in favor of the alternative hypothesis which signifies that on the basis of the teaching quality teachers prefer the classroom learning most over the e-learning procedure. Hence it can be conclude that the link up of internet with the teaching procedure can't be a permanent alternative of the classroom teaching as teachers support the classroom learning over the e-learning on the basis of teaching quality.

Testing Of Hypothesis Relating To The Various Issues & Challenges Faced By The Teachers Due To The Online Teaching During Lockdown

H_{01} : Online teaching doesn't increase the work pressure compared to the classroom teaching ($\mu \leq 3$)
 H_1 : Online teaching increases the work pressure compared to the classroom teaching ($\mu > 3$)

Calculation of One Sample Independent t-Test [Where, d.f=287, level of significance (α) =0.05]

n	Mean (\bar{x})	StDev (s)	C.V (s/ \bar{x})	T statistic	T Critical	Margin of error [m.e= Pvalue*(s/ \sqrt{n})]	C.I=[$\bar{x} \pm m.e$]	
							Lower Bound	Upper Bound
288	3.52	1.14	0.32	7.83	1.65	0.13	3.39	3.65

Table: 2.1.a

Descriptive Statistics

Median	Mode	Kurtosis	Skewness	Range	Minimum	Maximum	Sum
4	4	-0.993	-0.293	4	1	5	1016

Table: 2.1.b

Observation: As per the above table T statistic ($\frac{\bar{x} - \mu}{s/\sqrt{n}}$) = 7.83 is greater than the t-critical Value observed from the T distribution=1.65, so null hypothesis is rejected and alternative hypothesis is accepted here which defines that online teaching increases the work pressure compared to the previous circumstances ($\mu > 3$). According to the result of interval estimation the range of C.I lies between 3.39 & 3.65 which is higher than the neutral value. Therefore it can be concluded that most of the teachers agree that this

online teaching during the lockdown period increase the work load of them compared to the previous circumstances. As the value of the C.V is less than 1 so it can be said that the reaction of the passengers will not vary remarkably.

H_{02} : Converting the teaching material into digital format overnight is not much challenging for the teachers ($\mu \leq 3$)

H_2 : Converting the teaching material into digital format overnight is very much challenging for the teachers ($\mu > 3$)

Calculation of One Sample Independent t-Test [Where, d.f=287, level of significance (α) =0.05]

n	Mean (\bar{x})	StDev (s)	C.V (s/ \bar{x})	T statistic	T Critical	Margin of error [m.e= Pvalue*(s/ \sqrt{n})]	C.I=[$\bar{x} \pm m.e$]	
							Lower Bound	Upper Bound
288	3.57	1.11	0.31	8.74	1.65	0.13	3.44	3.70

Table: 2.2.a

Descriptive Statistics

Median	Mode	Kurtosis	Skewness	Range	Minimum	Maximum	Sum
4	4	-0.248	-0.707	4	1	5	1028

Table: 2.2.b

Observation: As per the above table T statistic $(_{287, 0.05}) [(\bar{x} - \mu)/(s/\sqrt{n})] = 8.74$ is greater than the t-critical Value observed from the T distribution=1.65, so null hypothesis is rejected and alternative hypothesis is accepted here which defines that converting the teaching material into digital format overnight is very much challenging for the teachers ($\mu > 3$)

According to the result of interval estimation the range of C.I lies between 3.44 & 3.70 which is higher than the neutral value. Therefore it can be said that transforming the

materials into digital format in most of the cases are challenging to the teachers in comparison to the previous circumstances and as the value of the C.V is less than 1 so it can be said that the reaction of the passengers will not vary remarkably.

H₀₃: Teachers doesn't get the support from the family of the students at the time of conducting the online classes ($\mu \leq 3$)

H₃: Teachers get all the support from the family of the students at the time of conducting the online classes ($\mu > 3$)

Calculation of One Sample Independent t-Test [Where, d.f=287, level of significance (α) =0.05]

n	Mean (\bar{x})	StDev (s)	C.V (s/ \bar{x})	T statistic	T Critical	Margin of error [m.e= Pvalue*(s/ \sqrt{n})]	C.I=[$\bar{x} \pm m.e$]	
							Lower Bound	Upper Bound
288	3.44	0.85	0.25	8.88	1.65	0.10	3.34	3.54

Table: 2.3.a

Descriptive Statistics

Median	Mode	Kurtosis	Skewness	Range	Minimum	Maximum	Sum
4	4	0.582	-0.443	4	1	5	992

Table: 2.3.b

Observation: According to the table, T statistic $(_{287, 0.05}) [(\bar{x} - \mu)/(s/\sqrt{n})] = 8.88$ is much greater than the t-critical Value observed from the T distribution=1.65, so null hypothesis is rejected and alternative hypothesis is accepted here which defines that teachers get all the support from the family of the students while conducting the online classes ($\mu > 3$). As per the results of interval estimation the range of C.I lies between 3.34 & 3.54 which is higher than the neutral value. Therefore it can be concluded that most of the teachers agree that they

get all the support from the family of the students while conducting the online classes. As the value of the C.V is less than 1 so it can be said that the reaction of the passengers will not vary remarkably.

H₀₄: Online teaching doesn't makes the teachers interested to take part in the content creation for various digital educational platforms ($\mu \leq 3$)

H₄: Online teaching makes the teachers interested to take part in the content creation for various digital educational platforms ($\mu > 3$)

Calculation of One Sample Independent t-Test [Where, d.f=287, level of significance (α) =0.05]

n	Mean (\bar{x})	StDev (s)	C.V (s/ \bar{x})	T statistic	T Critical	Margin of error [m.e= Pvalue*(s/ \sqrt{n})]	C.I=[$\bar{x} \pm m.e$]	
							Lower Bound	Upper Bound
288	3.88	0.88	0.23	16.83	1.65	0.10	3.78	3.98

Table: 2.4.a

Descriptive Statistics

Median	Mode	Kurtosis	Skewness	Range	Minimum	Maximum	Sum
4	4	1.563	-0.978	4	1	5	1116

Table: 2.4.b

Observation: As per the above table, T statistic $(_{287, 0.05}) [(\bar{x} - \mu)/(s/\sqrt{n})] = 16.83$ is much greater than the t-critical Value observed from the T distribution=1.65, so null hypothesis is rejected and alternative hypothesis is accepted here which defines that online teaching makes the teachers interested to take part in the content creation for various digital educational platforms ($\mu > 3$). According to the result of interval estimation the range of C.I lies between 3.78 & 3.98 which is higher than the neutral value. So, it can be said that most of the

teachers agree that this online teaching makes the teachers interested to take part in the content creation for various digital educational platforms. So, it opens up a new path of teaching. As it can be seen that, the value of the C.V is less than 1 so it can be said that the reaction of the passengers will not vary remarkably.

H₀₅: E-learning system can't be the future of the educational system in our country ($\mu \leq 3$)

H₅: E-learning system can be the future of the educational system in our country ($\mu > 3$)

Calculation of One Sample Independent t-Test [Where, d.f=287, level of significance (α) =0.05]

n	Mean (\bar{x})	StDev (s)	C.V (s/ \bar{x})	T statistic	T Critical	Margin of error [m.e= Pvalue*(s/ \sqrt{n})]	C.I=[$\bar{x} \pm m.e$]	
							Lower Bound	Upper Bound
288	3.54	1.11	0.31	8.31	1.65	0.13	3.41	3.67

Table: 2.5.a

Descriptive Statistics

Median	Mode	Kurtosis	Skewness	Range	Minimum	Maximum	Sum
4	4	-0.576	-0.509	4	1	5	1020

Table: 2.5.b

Observation: According to the table, T statistic $(_{287, 0.05}) [(\bar{x} - \mu)/(s/\sqrt{n})] = 8.31$ is greater than the t-critical Value observed from the T distribution=1.65, so null hypothesis is rejected and alternative hypothesis is accepted here which defines that E-learning system can be the future of the educational system in our country ($\mu > 3$)

reaction of the passengers will not vary remarkably.

H₀₆: E-learning system can't hamper the quality of learning of the students ($\mu \leq 3$)

H₆: E-learning system can hamper the quality of learning of the students ($\mu > 3$)

Calculation of One Sample Independent t-Test [Where, d.f=287, level of significance (α) =0.05]

According to the results of interval estimation the range of C.I lies between 3.41 & 3.67 which is higher than the neutral value. Therefore it can be said that most of the teachers agree that E-learning system can be the future of the educational system in our country. As the value of the C.V is less than 1 so it can be said that the

n	Mean (\bar{x})	StDev (s)	C.V (s/ \bar{x})	T statistic	T Critical	Margin of error [m.e= Pvalue*(s/ \sqrt{n})]	C.I=[$\bar{x} \pm m.e$]	
							Lower Bound	Upper Bound
288	3.32	1.04	0.32	5.21	1.65	0.12	3.20	3.44

Table: 2.6.a

Descriptive Statistics

Median	Mode	Kurtosis	Skewness	Range	Minimum	Maximum	Sum
4	4	-0.852	-0.221	4	1	5	956

Table: 2.6.b

Observation: As per the above table, T statistic $(287, 0.05) [(\bar{x} - \mu)/(s/\sqrt{n})] = 5.21$ is greater than the t-critical Value observed from the T distribution= 1.65, so null hypothesis is rejected and alternative hypothesis is accepted here which defines that E-learning system can hamper the quality of learning of the students ($\mu > 3$)

According to the result of interval estimation the range of C.I lies between 3.20 & 3.44 which is higher than the neutral value. Therefore it can be concluded that most of the

teachers agree that E- learning system can hamper the quality of learning of the students, because there is lack of face-to-face interaction, connectivity problems are there, and therefore it can also hamper the traditional student-teacher relationship. As the value of the C.V is less than 1 so it can be said that the reaction of the passengers will not vary remarkably.

Measuring Association between various attributes applying Cross Tabulation & Chi-square Test

Cross Tabulation between Age Group & Obstacles Created by Technological Skills to Cope up with the Digital Teaching Procedure

Age Group (Years)	No	Yes	Grand Total
Less than 30	48	12	60
31 - 40	88	28	116
41 - 50	28	52	80
51 - 60	5	7	12
Above 60	12	8	20
Grand Total	181	107	288

Table: 3.1.a

Cross Tabulation between Teaching Experience & Enhancement of Anxiety/Depression due to online Teaching

Teaching Experience (Years)	No	Yes	Grand Total
11 - 20	56	32	88
21 - 30	16	16	32
31 - 40	12	8	20
Less than 10	112	32	144
More than 40	1	3	4
Grand Total	197	91	288

Table: 3.1.b

Cross Tabulation between Gender & impact of Online teaching on the Maintenance of Work-Life Balance

Gender	No	Yes	Grand Total
Female	68	48	116
Male	88	84	172
Grand Total	156	132	288

Table: 3.1.c

Testing of Hypothesis using CHI- SQUARE Test (where, level of significance= 0.05 & n=288)

Hypothesis(H ₀)	d.f	χ^2 - statistic	Tabulated Value	Result	Cramer's V	Phi- Coefficient	Association
H₀₁: There is no significant relation between Age Group & Obstacles Created by Technological Skills to Cope up with the Digital Teaching Procedure	4	43.92	9.49	H₀ Rejected	0.39	N.A	Very Strong Relationship
H₀₂: There is no significant relation between Teaching Experience & Enhancement of Anxiety/Depression due to online Teaching	4	18.62	9.49	H₀ Rejected	0.25	N.A	Very Strong Relationship
H₀₃: There is no significant relation between Gender & impact of Online Teaching on the Maintenance of Work-Life Balance	1	1.45	3.84	H₀ Accepted	N.A	0.07	Weak Relationship

Table: 3.2

Observation: According to the result **H₀₁** of χ^2 -**Test** as the χ^2 - statistic is higher than the tabulated value at 5% level of significance so the null hypothesis is rejected here in favor of alternative one which signifies that there is a relation significant relationship between the age group & obstacles Created by technological skills to cope up with the digital teaching procedure. Again, the result of **Cramer's V correlation** also portraying a very strong association between these two attributes. So it can be conclude that obstacles creating by technological skills to cope up with the digital teaching procedure are affected by the age of the teachers.

As per the result of **H₀₂**, as the χ^2 - statistic is higher than the tabulated value at 5% level of significance so the null hypothesis is rejected here in favor of alternative one and also supported by **Cramer's V correlation** which signifies that there is a strong relationship between Teaching Experience & Enhancement of Anxiety/Depression, due to online Teaching. So it can be said that online teaching can increase anxiety or depression of a teacher.

The result of **H₀₃** signifies that, as the χ^2 - statistic is smaller than the tabulated value at 5% level of significance so the null hypothesis is accepted here and supported by **Phi Correlation**, which reveals that, there is no significant relation between Gender & impact of Online Teaching on the Maintenance of Work-Life Balance

III. CONCLUSION:

On the basis of the results obtained from the one sample independent t-test it can be summarized that- online teaching during this lockdown period increases the work load of the teachers, even converting the teaching materials in digital format overnight also become very much challenging for teachers. On the other hand the positive sides of this digital teaching are – firstly, teachers get all supports from the family of the students while conducting their online class, which is very crucial and secondly, this new era of online teaching during this lockdown period makes the teachers interested to take part in the content creation for various digital educational platforms which allows the education to spread beyond any geographical boundary. Despite of having these positive sides,

as per the opinion of the teachers, online teaching can hamper the quality of the students' learning as doubt clearance through these digital media is really very challenging. Also network connectivity creates a lot of troubles during the time of teaching. So according to the teachers only this online teaching can't be the future of the education system.

Even the results of Wilcoxon Sing Rank Test also portraying the same insight, teachers favour the traditional classroom teaching more than the online teaching, but in this pandemic period as they have no option except this online teaching so they are continuing the learning of the students through these digital mode.

This online teaching also creates a lot of challenges in the personal life of the teachers. Due to the enhancement of work load sometime it hampers the work-life balance of the teachers. Even as per the chi-square test age of the teachers affects the obstacles creating by technological skills to cope up with the digital teaching procedure. Further this online teaching sometimes increase the anxiety or the depression level of a teacher despite of having a long teaching experience, which is really bad for his/her health.

Still during this crisis period all the teachers are trying so hard to overcome their shortcomings and to give their best to their students as students are the future of a nation and they are creators of the nation's future.

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