Online Class Effectiveness and its Impact on Academic Performance of School Students at Chennai Region

Dr. Manjula Neti[1] and Dr.M.Kaveri[2]

[1]*Ph.D., Department of Business Management-Economics (Inter-Disciplinary),University of Madras, Email:manjulaasreen@gmail.com*

[2] *Assistant Professor, Department of Commerce, Agurchand Manmull Jain College, Chennai,Email:srikrishkaveri@gmail.com*

Abstract
The Covid-19 pandemic affects all areas of line including education institutions. The global lockdown resulted in a stressful situation for educational institutions which transformed the traditional leaning to online learning. Various innovative ICT tools have been applied by educational institutions in order to enhance the interest and ability of students in learning through online classes. Different schools used different application software to take online classes without any interruption. This study aims to find out the online class effectiveness and its impact on school students' academic performance in Chennai region. The study was descriptive and analytical in nature. Both primary and secondary data was collected. The primary data was collected by using structured questionnaire consisting of categorical, ratio and Likert scaled questions. The population of the study consists of parents of those students attending online classes at Chennai region. The sample size of the study was 100 respondents which were collected by using convenient ampling technique. These condary data was collected from the sources namely books, journals, articles, thesis, newspapers and magazines. The statistical tools used to analyze the data are percentage analysis, descriptive statistics, ANOVA and Linear regression analysis. The results of the study revealed that there exists a significant difference among school students' demographic profile and their academic performance. It is also found that there is a significant impact of effectiveness of online class on academic performance of students.

Key Words: Online Class, School Students' Academic Performance, Chennai Region.

I. Introduction

Many schools in India follow conventional methods of learning i.e face to face interactive teaching in a classroom environment. Many schools which include teachers, students and monitoring systems are totally new to the concept of online schooling. Effectually introducing technology into schools should be a slow and steady process with parallel training to teachers and students on its usage. Eventually it is mainly reliant on the locally available ICT resources (e.g. hardware, software and network infrastructure). Implementing ICT resources involves a huge cost and a conductive environment to sustain the use of ICT. With the sudden outbreak ofcovid-19 and most part of the nation was on quarantine and all the educational institutions like schools were closed and there was an overnight shift of normal class rooms into e-classrooms,

that is, teachers have shifted their entire academic methods to online- schooling. This situation gave rise to several questions like whether online teaching–learning methods can provide quality education and how all schools will adopt online learning in a large way (Carey, 2020). Though using technology was at ease but teachers expressed their non-interaction with the students, the profession, and their peers as a result of limited communication exchanges due to related infrastructure barriers. On the other hand, each student expressed a different online-classroom experience based on the ICT facilities used by their teachers and the home-based environment. The study gives us an effective knowledge of online teaching and the use of ICT tools to increase school students' learning interest.

II.   Problem definition

The COVID -19 pandemic disrupted people's daily lives across the globe, but the virtual world provided a crucial distraction. A number of educational institutions, including schools, have moved to virtual classroom platforms. As a result, online education has become aviable alternative to traditional classes. But, there rises a question whether online classes are effectively conducted and the students at school level are happily involving themselves in learning through online classes. It is also to be noted that digital content creation might not be a strong point for all teachers, so they may not be well versed with enhancing learning online. They have to take optimum effort in learning the ICT tools which are applied in online classes. On the other hand, students from poor backgrounds face obstacles in obtaining the necessary facilities for online education, such as an Internet connection, laptop, and smart phone. Due to the minimal control that teachers have over students, students who have all the facilities may not be interested in listening to online classes. Some students who can access online classes face the same problem as teachers who are supposed to conduct classes online from their homes, in which there is no physical space available. Thus, it is more challenging for teachers as well as parents to generate an interest in learning among their children through online classes. This study has been undertaken to find the impact of online classes on school students' academic improvement with respect to Chennai. It also examines the factors responsible for students' effective learning, their involvement and interest in online class.

III. Literature Review

Marion Handel (2020) has investigated the aspects related to digital readiness in the COVID-19pandemic times and how it influenced their socio-emotional perceptions. The researchers tried to understand every student's emotional and social loneliness. The researcher has tried to find the demographic variables on the personal situation financially like (number of household members, number of children with on-site child care). The researchers have collected the sample from 1826students and the data is collected on an online survey. The researcher mainly focused on four aspects based on students' digital readiness that were in their first online course in the current term.

Shivangi Dhawan (2020) highlighted the relevance of the examination of e-learning modalities incrisis times via online learning and strengths, weaknesses, opportunities, &challenges (SWOC). There searcher said online learning is easily accessible, afford able and flexible even to remote learners. The researcher also concluded that it is economical in terms of transportation, accommodation, and the overall cost of institution-based learning. The researcher also proved that Online Teaching Is No More an Option, It Is a Necessity due the lockdown situation due to the outbreak of the pandemic. The researcher also mentioned the associated problems with the technology supported learning, which range from downloading errors, issues with installation, login problems, problems with audio and video and added to this the students find online teaching to be boring and unengaged. The researcher tried to analyze using SWOC analysis and used a descriptive research method. The researcher also observed a lot of support came from the EdTechstart-ups by providing several free courses and e-resources to the students. **Sureshetal**.(2018) have investigated the effect of e-learning on academic performance of undergraduate students in Chennai city of Tamil Nadu. The researchers surveyed61participants through a survey link called survey planet, an online forum, which resulted in a positive influence on the academic performance of undergraduate students and further the researchers found that traditional learning is expensive and takes along time, where as E-Learning offers an alternative that is faster, cheaper, and potentially better. The researchers further suggested E-Learningto be made available forall.

DondorfT.(2016)compared online course with physicalclass room learning courses. The researchers provided a direct comparison of e-learning and classroom teaching in practice. Insupport of this a survey was conducted that allowed the students to give feedback about the perception and satisfaction of the study. The researcher found that the classroom learners performed significantly betterthanthe studentsusingthee-learning platform and this was proved by the motivation levels of students.

DilaniS.P.Gedera(2014)conductedacasestudywheresixstudentsandtheirlecturerparticipated and focused on a fully online course offered in an academic year. The researcher's aim was to find the students' views on their experiences of learning with thesynchronousAdobe Connect virtual classroom in a fully online university course. The researcher found thatthe participants were benefited by getting to know each other better as there was instant feedbackalong with interactions with peers and the facilitator appeared to increase motivation and studentlearning. The researcher also found that different time zones were a major constraint and thestudents need to have multiple skills to get the best from

the virtual platform. The researcherconcluded that the students preferred a virtual classroom experience due to time flexibility. Theresearcher found that Adobe Connect virtual classroom requires further research that focuses on every day practices and uses.

IV. Objectives of the study

1) To study the demographic factors of school students attending online classes in Chennai.
2) To identify the factors that influence effective learning of school students from online classes.
3) To explore the impact of online class on academic performance of school students with respect to Chennai.
4) To give some suggestions and recommendations for the success of online class in order to enhance the academic performance of school students.

V. Significance of the Study

This research identifies the important aspects of online-learning by school students and to enable the online -classes to develop and improve their effectiveness. This will improve the students' learning process and ensure the successful implementation of online-classes, especially in this pandemic situation. Furthermore, this study will serve as a reference for the instructors, teachers, technical people, parents and students to improve in their related areas. It aids inrefining satisfaction by implementing the suggestion sgiven bythem.

VI. Research Methodology

a) **Research Design:** The study is descriptive and analytical in nature. It describes theonline-classes effectiveness and its impact on school students' academic performance inChennai region.

b) **Sampling Technique and Sampling Procedure:** The target population of the study is parents of those students attending online classes at Chennai. The sampling techniqueadopted for the study is convenient sampling method. The sample size chosen for thestudyis 100.

c) **Instrumental Design:** A self constructed questionnaire has been administered to collect primary data from the respondents through online methods like Whatsapp, Email etc.,using Google forms. The questionnaire was composed of three dimensions namely –DemographicProfileofStudents(Dimension-I),OnlineClassEffectiveness(Dimension
-II), School Students' Academic Performance (Dimension -III). The questionnaire hasbeen framed by using dichotomous scale, categorical scale, ratio scale and Likert's five-pointscale.

d) **Data Collection Method:** It consists of both primary and secondary data source. TheprimarydatahavebeencollectedfromtherespondentsusingGoogleforms.Thesecondary data have been collected from books, journals, thesis and from concerned websites.

e) **Tools for Analysis:** The statistical tools used for the analysis are percentage analysis, descriptive statistics, ANOVA and Linear Regression Analysis**.**

VII. Conceptual Framework

IV   DV

Effectiveness of Online Class	—	Academic Performance of School Students
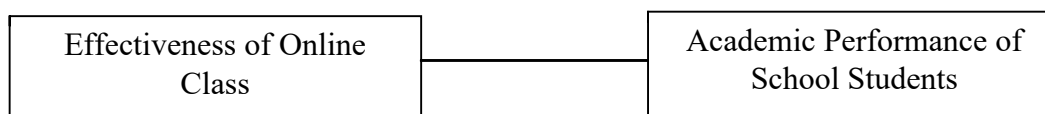
VIII. Hypotheses

H_{11}:Thereisasignificantdifferencebetweenschoolstudents'demographicprofileandtheiracademicperformance.
H_{12}:Thereisasignificantimpactofonlineclasseffectivenessandacademicperformanceofschool students.

IX. **Analysis and Interpretation**

a. **Cronbach's Alpha Reliability Test**

<div align="center">Table1</div>

Sl.No.	Scale	No.of Items	Cronbach's Alpha(α)
1.	Effectiveness of Online Class	11	0.944
2.	Academic Performance of School Students	11	0.817

[Source:PrimaryData]

Based on the above tables, we can infer thattheCornbach's Alpha values for both variables are over 80%, which means that the variables have high levels of internal consistency and are closely related to each other as a group.

b. **Percentage Analysis**

In order to study the demographic profileof students, percentageanalysisis applied.

<div align="center">**Table2–Students'Demographic Profile**</div>

Sl.No.	Students'DemographicProfile	Percentage
1	**Gender** Male Female **Total**	50 50 **100**
2	**Age** Below10years 10–11years 12–13years 14–15years 16-17 years **Total**	20 20 20 20 20 **100**
3	**GradeLevel** PrimarySchoolLevel SecondarySchoolLevel HigherSecondarySchoolLevel **Total**	30 30 40 **100**
4	**Deviceused forOnlineClass** Desktop Laptop SmartPhone Tablet **Total**	22 34 31 13 **100**
5	**AdequateInternetConnection** Always Often	17 25

	SometimesRarely	35
	Total	23
		100
6	**TimeSpentforOnlineClass**	
	1– 2 hours	15
	3– 4 hours	35
	5– 6 hours	30
	Morethan 6hours	20
	Total	**100**

[Source:PrimaryData]

The above table shows that gender of students are equally distributed among male and femalestudents(50%),ageofthestudentsalsoequally distributedtounderstandtheonlineclasseffectiveness among all age group of students (20%), majority (40%) of the students are studyinghigher secondary class, majority (34%) of the students are using laptop to attend online class,35% of the students are having somewhat speed and continuity in internet connection to attendonlineclass, majority(35%) ofthestudents spendbetweenthreeandfourhours foronlineclass.

c. Descriptive Statistics

In order to measure the level of online class effectiveness and school students' academicperformance,descriptivestatistics is applied**.**

Table3.a-Effectivenessof Online Class

Sl.No.	Scale	Mean	Standard Deviation
1.	Useof powerpointpresentation	3.15	1.12
2.	Explainingthe content usinginnovative videos	2.93	1.26
3.	Provisionof understandable studymaterials	3.00	1.24
4.	Effectivedoubtclarificationclasses	2.81	1.37
5.	Goodcommunicationskill	2.77	1.45
6.	Clarityin explanation	2.85	1.33
7.	Usingexcel and other innovativetechnologyfor mathematics	2.86	1.27
8.	ProvisionofMCQusinginterestingapplications	2.80	1.39
9.	Userfriendlysoftware	2.84	1.29
10	Continuousassessmentbasedon test, assignmentsetc	3.01	1.07
11.	Timelycompletion oflessons	3.06	1.36

[Source:PrimaryData]

It is inferred from the above table that the mean value of effectiveness of online class isbelow 3.20, which means that the effectiveness of online class is below the average level. Basedon the mean value, the major factor which influences the effectiveness of online class and enhances the students' ability in learningis" Use of power point presentation(3.15)",followed

by" Timely completion of lessons(3.06)","Continuousassessmentbasedontest,assignmentsetc(3.01)", "Provision of understandable study materials(3.00) etc.

Table3.b–Academic Performance of School Students

Sl.No.	Scale	Mean	Standard Deviation
1.	Regularityin attendingonlineclasses	2.97	1.11
2.	Followingtheinstructions oftheteacher	2.77	1.38
3.	Consistencyin learning	2.79	1.15
4.	Takingnotes duringonlineclasses	2.99	1.15
5.	Highlyinteractiveinansweringthe questions	2.81	1.22
6.	Self-developmentin understandingtheconcepts	2.99	1.14
7.	Regularityinstudyingthematerialswithoutgetting monitoredbypatents	2.91	1.13
8.	Timelycompletionofassignments/homework	2.93	1.17
9.	Effectiveparticipationinonlineexam	2.67	1.25
10	Activeparticipationin doubtclearingsessions	2.58	1.34
11.	Improvementincommunicationskillwhileinteracting withteachers	2.66	1.09

[Source:PrimaryData]

It is inferred from the above table that the mean value of school students' academicperformance isbelow3.00,whichmeansthattheschoolstudents'levelof learning throughonline class is said to be poor. Based on the mean value, the major factor which enhances theacademic performance of the students is "Taking notes during online classes (2.99)" and "Self-development in understanding the concepts (2.99)", followed by "Regularity in attending onlineclasses (2.97)", "Timely completion of assignments/homework (2.93)", "Regularity in studyingthematerials without gettingmonitored bypatents(2.91) etc.

d. Analysis Of Variance(ANOVA)

In order to identify thesignificant differencebetweenschool students' demographicprofileand theiracademicperformance,ANOVAis applied.

H_{01}: There is no significant difference between school students' demographic profile and theiracademicperformance.

H_{11}: There is a significant difference between school students' demographic profile and theiracademicperformance.

Table4: School Students' Demographic Profile and Academic Performance

DemographicProfileofStudents	F	Pvalue
Gender	3.063	0.001**
Age	13.384	0.003**
GradeLevel	8.822	0.006**

DeviceusedforOnline Class	10.851	0.002**
AdequateInternetConnection	10.782	0.001**
Time Spend forOnline Class	9.063	0.003**

[Source:PrimaryData]

Note:**Significant at1%level

Since P value is less than 0.001, the alternate hypothesis is accepted at 1 per cent level ofsignificance. Hence it is concluded that there is a significant difference among school students'demographicprofile andtheiracademicperformance.

e. Linear Regression

Inordertofindoutthesignificantimpactofonlineclasseffectivenessandacademicperformanceof school students, linearregressionanalysis is applied.

H_{02}: There is no significant impact of online class effectiveness and academic performance ofschool students.

H_{12}: There is a significant impact of online class effectiveness and academic performance ofschool students.

Table5.a:Model Summary

Model	R	RSquare	AdjustedR Square	Std.Errorof the Estimate
1	0.842[a]	0.709	0.708	4.517

[Source:PrimaryData]

Note:**[a]**-Predictors:(Constant),EffectivenessofOnlineClass

From the above table, the R value is 0.842 which indicates a high degree of correlation.The R^2valueis0.709whichindicateshowmuchofthetotalvariationintheacademicperformance of school students can be explained by effectiveness of online class. In this case,70.9%oftheobservedvariabilityinacademicperformanceofschoolstudentscanbesignificantly explained by the opinion of parents' towards effectiveness of online class. Theremaining 29.1% is not explained which means that the rest 29.1% of the variation in theacademic performance of school students is related to other variables which are not depicted inthis model.

Table5.b:ANOVA[a]

	Sumof Squares	df	MeanSquare	F	Sig.
Regression	32155.689	1	32155.689	1576.172	0.001**
Residual	13219.936	648	20.401		
Total	45375.625	649			

[Source:PrimaryData]

Predictors:(Constant),Effectiveness of Online Class

Dependent Variable: Academic Performance of School StudentsNote:** Significantat 1%level.

From the above table, the linear combination of effectiveness of online class is significantly related to the academic performance of school students(F=1576.172andP=
<0.001**)anditissignificantat1 per centlevel.

Table 4.c: Co-efficients between Effectiveness of Online Class and Academic Performance of SchoolStudents

Variables	USC	SE	SC	t value	Pvalue
(Constant)	11.904	0.518		22.960	<0.001**
EffectivenessofOnline Class	0.836	0.021	0.842	39.701	<0.001**

[Source:PrimaryData]

Note:**Significantat1%level.
USC=UnstandardisedCo-efficient,SE=StandardError,SC=StandardisedCo-efficientDependent variable (Y) = Academic Performance of School StudentsIndependent/predictor variable =EffectivenessofOnlineClass(X_1)

The Ordinary Least Squares (OLS) equation for academic performance of school students is:AcademicPerformanceof School Students (Y) =$0.836X_1$+e

Theco-efficientofX_1is0.836whichrepresentthedirectrelationshipbetweeneffectivenessofonlineclassandacademicperformanceofschoolstudents.Theestimatedpositive sign indicates that for each additional unit of positive opinion of parents' regarding effectiveness of online class, there is a 0.836 unit increase in the academic performance of schoolstudentsand it is significant at 1%level.

X. Findings
Based on percentage analysis, it is learnt that majority (34%) of the students are using laptop toattend online class, 35% of the students are having somewhat speed and continuity in internetconnection to attend online class, majority (35%) of the students spend between three and fourhours for online class. From the descriptive statistics, it is clearly learnt that the effectiveness of online class and academic performance of the students are at low level. Based on ANOVA test, itis understood that there is a significant difference among school students' demographic profileand their academic performance. The linear regression analysis has proven that 70.9% of theobserved variability in academic performance of school students can be significantly explainedbythe opinion of parents' towards effectivenessof online class.

XI. Conclusion
Our Indian schools had to emerge with online classes to overcome the pandemic situation all ofsudden. This gave rise to many questions such as the effectiveness of online class and its impacton the academic performance of school students. There is a need to take steps to improve thepresent scenario of online classes that includes, user friendly software, Provision of MCQ usinginterestingapplications,GoodcommunicationskillandUsingexcelandotherinnovativetechnology for Mathematics. It is very important to attain skills, knowledge and other expertiseandthisisacquiredonlywhenperfecteffectivenessofonlineclassisachieved.Basedonthe information gathered, the majority of the students needed more interactive sessions, Clarity inexplanation, and Effective doubt clarification classes and User friendly software. Thus, it hasbeensuggestedthataneffectiveonlineclassisaccomplishedwithconcretechangesincommunicationwith students learningonline.

XII. Suggestions
This study discusses the effectiveness of online classes and its impact on academic performance on school students in the Chennai region. Based on percentage analysis, it is concluded that there is a huge variation in using various devices like laptops, smart phones, tablets, desktops and others to attend online classes as this is left to the comfort and convenience of the students. Consequently, the students attended the online classes on an average of three to four hours a day. Based on the descriptive analysis, it is found that the effectiveness of online class and academic performance of the students have not reached the satisfaction levels. Hence it has been suggested to go for user friendly software and constant motivation from the teachers to the students. Basedon the ANOVA test, it has been concluded that there is a significant difference among school students' demographic profile and their academic performance. Therefore, to fill the gap, improvements to be made in communication skills while interacting with teachers and active participation in doubt clearing sessions to be made regular by the teachers. Based on the linear regression, it is observed that 70.9% variability in academic performance of school students. Hence the linear combination of factors of academic performance is significantly related to the effectiveness of onlin eclass.

XI. Limitations of the Study
1) The study has chosen effectiveness of online class on academic performance of students alone. It ignores other factors namely psychology, economic status, medium of school , type of school in order to find out the academic performance of students.
2) The respondents of the study are limited to 100 parents of those students attending online classes.
3) The study is limited toChennai Region.

References
Cronbach, L.J. (1951). Coefficient Alpha and the Internal Structure of Test. *Psychometrika*,16(3),297-334.
Dhawan, S. (2020). Online Learning: A Panacea in the Time of COVID-19 Crisis. *Journal of Educational Technology Systems*, *49*(1), 5–

4773

22.https://doi.org/10.1177/0047239520934018

Dondorf, T., Breuer, R., & Nacken, H. (2016). Classroom Vs. E-Learning: a Case Study on the Performance of Students in Different Learning Scenarios. *EDULEARN16 Proceedings*,*1*(July),6507–6516. https://doi.org/10.21125/edulearn.2016.0410

Händel, M., Stephan, M., Gläser-Zikuda, M., Kopp, B., Bedenlier, S., & Ziegler, A. (2020). Digitalreadinessanditseffectsonhighereducationstudents'socio-emotionalperceptionsinthecontextoftheCOVID-19pandemic.*JournalofResearchonTechnologyinEducation*, *0*(0),1–13. https://doi.org/10.1080/15391523.2020.1846147**Gedera, D. S. P. (2014).** Students' experiences of learning in a virtual classroom. *InternationalJournal of Education & Development Using Information & Communication Technology*,*10*(4), 93–101.

http://search.ebscohost.com/login.aspx?direct=true&db=eue&AN=100293832.

RajendraNargundkar.(2003).*MarketingResearch–TextandCases*.TataMcGraw-HillEducation, 2ndEdition.

Suresh,M.,VishnuPriya,V.,&Gayathri,R.(2018). Effectofe-learningonacademicperformanceof undergraduate students.*Drug Invention Today*,*10*(9), 1797–1800.