Covid-19 Lockdown - Opening Doors for Online Education- A Study with Special Reference to Sdnb.Vaishnav College, Chennai

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Abstract
The world's largest lockdown, was imposed on the 130 crore Indian population to stay at home from 24th March 2020 to halt the spread of the deadly virus Covid -19.

The unprecedented and sudden imposition of the countrywide lockdown has impacted the life of all the citizens in different ways. The hustle of the busy cities, the 24/7 services, Bullish stock markets, Booming trades, across the Globe travels, suddenly came to standstill. The police, administrative, health care and essential services have been working relentlessly to live up to the situation. Electricity, Phone and Net connectivity have been the lifeline support to the public during the lockdown. This has kept people connected during their stay at home, discussing, sharing views and getting assistance.

Amidst this lockdown the Indian Schools and colleges had to be closed down immediately while they were all gearing themselves towards the Board and End semester examinations.

The Educational Institutions are trying to grapple with many other issues and are looking for new and novel ways of sustaining through this situation and providing uninterrupted education to the students so that learning doesn't stop by the confinement.

Thanks to the digital advancements in Information and Communication Technology that has opened up new vistas of Education. The Indian education system is witnessing a transition to match the need of the hour. The Education system is heading for a transformation with
➢ Online / Virtual Class Rooms >Online Examinations
➢ Online Assessments > Digital Certification
Although many Universities and Premier Educational Institutions have already ventured into all spheres of the online education eco-system, several institutions are still grappling with the change.

This paper is an attempt to evaluate the perception of students on the online teaching methodologies adopted by Arts & Science college professors to learn, teach and engage their students during this Covid lockdown. The paper intends to identify whether the students prefer the online environment to the class room learning environment. Both have their own advantages and limitations.

Another aspect of the study is to identify, how effective the learning is through the electronic mode? Can theoretical and practical subjects be effectively delivered using the electronic mode? Which is the most popular app used by the Professors for teaching? Do the professors use multiple apps to deliver classes and evaluating assignments? Are all the students in a class room effectively connected through the apps? Whether the students will prefer to give their exams online if the lockdown is extended?

Probably there is indication that Education Ecosystem will completely change. Physical Class rooms and presence may become the thing of the past in the years to come. This Survey will bring to light the changes that we are presently witnessing in the field of Education.

I. INTRODUCTION:
This study was initiated in view of the sudden changes that have taken college education system by a sweep during the lock-down period. Many college professors responded quickly to the Covid-2019 lock down and took to remote on-line teaching to complete the syllabus and to keep the students engaged. For the students it's a new learning experience different from the class room experience. This paper intends to get the student's feedback on this experience and take cues from that.

II. REVIEW OF LITERATURE

Garry Falloon (2011) analysed the affordability and limitations faced by the students related to the use of virtual classroom and factors that impacted the effectiveness of the student's virtual classroom experience. The study concluded the students prefer virtual class room teaching.

Amritesh PS, Jeayaram Subramanian (2019) state that the Virtual reality helps in understanding the concept clearly and makes it easier to learn and remember for them.

❖ **Objective of the Study**
- To study the socio-economic and internet usage **Profile-of College students,**
- To identify College student's **most preferred On-line teaching APPs.**
- To analysis **Satisfaction levels** of students on On-line learning
- To know Student's **Perception** towards on-line learning
- To evaluate the **Utility value** of On-line learning to College students.
- To assess the student's **perception towards Online End Semester Examination**
- To identify student's **preference between regular class room and online learning**
- To establish **association between Net usage profile and preference for Classroom/ Online teaching**

❖ **Hypothesis of the study**
- The factors of Online – learners on Present online App systems do not differ significantly
- The factors of Satisfaction and Perception towards Remote-online learning do not differ significantly.
- The factors Utility of online learning to students do no differ significantly.
- The factors of perception on Online Exams do not differ significantly.
- There is No Association between the internet access facility and their preference for classroom/ online teaching
- There is No Association between the Device used and their preference for classroom/ online teaching

❖ **Empirical method :**
A on-line survey of 503 students was conducted using Google Forms and 450 valid responses were identified.

❖ **Area of the study:** The study is confined to Chennai City only.

❖ **Sample Size**
Since the population for the survey are very large, and due to time limitation, a sample size of 450 was taken for the survey, most of them (96%) being students of SDNBVC.

❖ **Sources of Data & Sampling method**
Primary Data: Survey method was employed to collect the data from the student respondents using Google forms distributed among students of SDNBVC & a few Chennai colleges.

- **Secondary data:** The secondary data was collected from journals, magazines, books, articles, research papers and websites.

❖ **Research Tools :**
 Percentage analysis, Weighted ranking, Chi-square test, Cluster Analysis

❖ **Data Instrument:** Questionnaire circulated using Google forms

THE SURVEY FINDINGS
Demographic Profile Of The Respondents:
- 432 (96%) of the respondents belong to SDNBVC
- 438 students are Female students and 12 Male students; 414 UG and 36 PG students
- 75% of student's Parent's income fall between Rs.10,000-20,000pm for Fathers and below Rs.10,000 for Mothers (if earning)
- 85% of students depend on Mobile Data pack for Net connectivity. Only 13% have access to Broadband.
- 95% of the students use Smart phone device for on-line learning. Only 4% have lap tops or desk tops

Most Preferred App For Remote Learning:

RANK	APP	WEIGHTED RANK SCORES
1	WHATS APP VEDIOS	1403
2	ZOOM	1463
3	GOOGLE CLASS ROOM	1524
4	EMAILS	1532
5	MS TEAMS	1748
6	OTHERS	1794

Source: computed data

Most popular app among students for remote learning is Whatsapp (rank 1), Zoom (rank2), Google class room (rank3) .

Students Satisfaction Level On Remote Learning

SATISFACTION PARAMETER	Total Wtd SCORE	Avg score	RANK
S1- Learning with ease?	1221	2.592357	1
S2-Meets Student's learning needs?	1252	2.659236	2
S4-Features of the App	1260	2.675159	3
S3-Meets Course learning objectives?	1269	2.694268	4
S6- Individual learning speed?	1307	2.774947	5
S5- Course content	1338	2.840764	6
S7- Effectiveness	1551	**3.292994**	7

Source: computed data

Students were asked to assess their satisfaction on each parameter on 5 point scale 1- Excellent, 5 – Very Poor. **Score between 1- 3 can be regarded favourable** and above 3 unfavourable.
On all parameters like – Ease of learning, meets Learning needs, Features of the Apps, Course coverage, Learning speed the Average score is below 3. Students are SATISFIED on most of the factors of remote learning. On the parameter 'Effectiveness', many have ranked beyond 3. So they don't regard remote learning to be more effective.

Perception Of Remote Learning After Lock- Down Experience

Variables	Total Wtd SCORE	Avg score	RANK
P4- Explore Technology	977.5	2.075372	1
P2- Understand the subject more deeply.	1003	2.129512	2
P3- Convenient pace	1005	2.133758	3
P6- ICT/information skills	1008.5	2.141189	4
P7-Employment prospects in the long term.	1020	2.165605	5
P5- Collaborate with others easily.	1026.5	2.179406	6
P1- Better results in my Subjects.	1070	2.271762	7

Source: computed data

Student's perception on remote learning indicates that it offers them opportunity to explore technology, understand subjects deeply, learn at convenient pace, improve ICT skills etc. Students have a POSITIVE PERCEPTION on all the parameters evaluated**.**

Usefulness Of Remote Learning

Variables	Total Wtd SCORE	Avg score	RANK
U6- Use the technology	996.5	2.115711	1
U3- Performance	1001	2.125265	2
U4- Skilful	1002	2.127389	3
U1-Ease of Use	1004.5	2.132696	4
U5- Ease of learning	1030.5	2.187898	5
U2- Effectiveness	1054.5	2.238854	6

Source: computed data

Students have agreed that remote learning IS USEFUL on all the above parameters. Use of technology is the best ranked parameter. But the parameter 'Effectiveness' is ranked the last among the parameters.

Opinion On Aspects Of Remote Teaching

Variables	Total Wtd SCORE	Avg Score	RANK
O5-lnstructor's teaching style	1193.5	2.53397	1
O1. Online class content and structure	1209	2.566879	2
O4. Instructor's attitude	1225	2.600849	3
O2. Web usage & online interaction	1317	2.796178	4
O3. Online connectivity during classes	1368.5	2.90552	5

Source: computed data

Students have given a POSITIVE OPINION about Teacher's teaching style in remote learning, content, Teacher's attitude, Web usage. The average score is close to 3 and ranked last for 'Online connectivity' indicating that students have faced difficulty of NET connectivity during classes.

Opinion On Online Examination

Variables	Tot. Wtd SCORE	Avg	RANK
OE5. Analysis of performance	1197.5	2.542463	1
OE1.Convenient for a student	1217	2.583864	2
OE2. Assessing the knowledge of the students	1224.5	2.599788	3
OE6. On all aspects in general	1230	2.611465	4
OE4. More effective	1246	2.645435	5
OE3. Online Assessments are Fair and reliable	1263.5	2.68259	6

Source: computed data

Opinion scale on all parameters of Online exams are below 2.7. That is good indication that most students favour Online examinations to written exams for reasons like: They can analyse their performance, More convenient, Correct assessment of knowledge. We can conclude that students PREFER ON-LINE EXAMINATIONS for many reasons.

Preference Between Classroom Teaching & Remote Class Room

VARIABLES	% CLASS ROOM	% ONLINE
Interaction with other students	86.62%	12.10%
Interaction with Staff	83.86%	14.44%
Convenience of Learning	79.83%	18.47%
Overall preference	79.83%	18.26%
Better comprehension	75.58%	21.87%
Gaining Knowledge	74.73%	23.35%
End Semester Examination	74.52%	23.14%
Accessibility	66.24%	31.63%
Learning time - Faster	62.85%	35.67%

Source: computed data

Survey respondents have predominantly expressed their PREFERENCE TO CLASS ROOM TEACHING over Remote / On-line learning. First and foremost reason is 'Interaction with other students', followed by interaction with staff, convenience of learning etc. are better in class room learning.

CHI- SQUARE ANALYSIS
❖ *Association between 'Internet Access facility used' and ' Preference between Online and Class room teaching'*

Students have internet access through Mobile Net pack or Broadband or Net centres. Whether the mode of internet access, influences the preference for Classroom/ Online teaching is analysed by establishing the association between the variables using Pearson's Chi square test in the following tables. Significance level below 0.05 indicates that null hypothesis is rejected and that ' There is association between the two variables'

ACCESS TO INTERNET (12) vs PREFERENCE TO CLASS ROOM LEARNING (51-59)

VAR00012 * VAR00051

Access to Internet	Convenience of Learning		Total	Pearson Chi-Square 51.78	Sig. 0.000	Hypothesis
	Online Teaching	Class Room Teaching				
Broad band connectivity –Wifi	0	60	60			Rejected
Mobile Data Pack	68	314	382			
Net Centres	8	0	8			
Total	76	374	450			

Source: computed data

VAR00012 * VAR00052

Access to Internet	Learning time – Faster		Total	Pearson Chi-Square 116.79	Sig. 0.000	Hypothesis
	Online	Class Room				
Broad band connectivity –Wifi	60	0	60			Rejected
Mobile Data Pack	110	272	382			
Net Centres	0	8	8			
Total	170	280	450			

Source: computed data

VAR00012 * VAR00053

Access to Internet	Interaction with students		Total	Pearson Chi-Square 432.78	Sig. 0.000	Hypothesis
	Online	Class Room				
Broad band connectivity –Wifi	58	2	60			Rejected
Mobile Data Pack	0	382	382			
Net Centers	0	8	8			
Total	58	392	450			

Source: computed data

Similarly The Association between Mode of Access to internet and other parameters of Preference to classroom teaching have been established through Chi- square Analysis- Interaction with staff (Sig 0.000), Better comprehension (Sig 0.000), Easy Accessibility (Sig 0.000), Gaining Knowledge (Sig 0.000), End Semester exam (Sig 0.000), Overall preference (Sig 0.000),

On all the Parameters it is established **that *there is Association between the NET ACCESS FACILITY used and Preference for Class room /Online Teaching.***
❖ **Association between 'Device used' and ' Preference between Online/Class room teaching'**

DEVICE USED (13) Vs PREFERENCE TO CLASS ROOM LEARNING (51-59)

VAR00013 * VAR00051

DEVICE USED	Convenience of Learning		Total	Pearson Chi-Square 113.82	Sig. 0.000	Hypothesis
	Online Teaching	Class Room Teaching				
Smartphone	54	374	428			Rejected
Tablet or iPad	3	0	3			
Laptop	15	0	15			
Desktop computer	4	0	4			
Total	76	374	450			

Source: computed data

VAR00013 * VAR00052

DEVICE USED	Learning time – Faster		Total	Pearson Chi-Square 14.04	Sig. 0.000	Hypothesis
	Online Teaching	Class Room Teaching				
Smartphone	170	258	428			Rejected
Tablet or iPad	0	3	3			
Laptop	0	15	15			
Desktop computer	0	4	4			
Total	170	280	450			

Source: computed data

VAR00013 * VAR00053

DEVICE USED	Interaction with other students		Total	Pearson Chi-Square 34.22	Sig. 0.01	Hypothesis
	Online Teaching	Class Room Teaching				
Smartphone	58	370	428			Rejected
Tablet or iPad	0	3	3			
Laptop	0	15	15			
Desktop computer	0	4	4			
Total	58	392	450			

Source: computed data

Similarly The Association between Device used to Access internet and other parameters of Preference to classroom teaching have been established through Chi- square Analysis- Interaction with staff (Sig 0.03), Better comprehension (Sig 0.000), Easy Accessibility (Sig 0.01), Gaining Knowledge (Sig 0.01), End Semester exam (Sig 0.01), Overall preference (Sig 0.02).

On all the Parameters it is established that **there is Association between the DEVICE USED FOR NET ACCESS used and Preference for Class room /Online Teaching.**

CLUSTER ANALYSIS
Based on the student's response, ranking their satisfaction, perception, utility, opinion etc on a 5 point Likert scale (1- V.Good, 2- Good, 3- Neutral, 4- Bad, 5- very bad) they were grouped into 3 predominant clusters based on their attitude towards online teaching and learning.

Number of Cases in each Cluster

Cluster	1- Trendy learners	168.000
	2- Timely & Adoptive learners	224.000
	3 – Traditional leaners	58.000
Total		450.000

Source: computed data

Trendy learners: They are the students who have responded most favourably to the online learning techniques introduced. They constitute 37% of the respondents

Timely & Adoptive Learners : Student respondents who have been more or less neutral but have adopted to the new learning are called the timely & adoptive learners. They constitute the majority. 50% of the respondents belong to this group

Traditional Learners : They are the student respondents who have found online learning inconvenient and have ranked them unfavourably. They constitute 13% of the respondents.

❖ **ASSOCIATION BETWEEN CLUSTERS AND DEMOGRAPHIC VARIABLES**

Cross tabulation Cluster and Father's occupation

CLUSTER GROUP	Father's occupation					Total	Pearson Chi-Square 9.109	Sig.0.017	Hypothesis
	Professional	Government employee	Business	MNC & other Private Sector	Others				Rejected
1	7	14	39	21	87	168			
2	12	21	60	38	93	224			
3	3	9	17	10	19	58			
Total	22	44	116	69	199	450			

Source: computed data

Cross tabulation Cluster and Father's monthly income

CLUSTER GROUP	Father's monthly income					Total	Pearson Chi-Square 9.918(a)	Sig. .012	Hypothesis
	Below Rs.10,000	Rs. 10,000 - 20,000	Rs. 20,000 - 30,000	Rs. 30,000 - 40,000	Above Rs. 40,000				Rejected
1	38	60	27	21	22	168			
2	64	83	33	18	26	224			
3	19	23	8	7	1	58			
Total	121	166	68	46	49	450			

Source: computed data

Cross tabulation Cluster and Mother's monthly income

CLUSTER GROUP	Mother's monthly income					Total	Pearson Chi-Square 14.257(a)	Sig. .015	Hypothesis
	Below Rs.10,000	Rs. 10,000 - 20,000	Rs. 20,000 - 30,000	Rs. 30,000 - 40,000	Above Rs. 40,000				Rejected
1	116	24	12	7	9	168			
2	172	22	7	12	11	224			
3	49	8	0	1	0	58			
Total	337	54	19	20	20	450			

Source: computed data

Cross tabulation Cluster and Location of residence

CLUSTER GROUP	Mother's monthly income					Total	Pearson Chi-Square 12.563(a)	Sig. .040	Hypothesis
	North Chennai	South Chennai	Central Chennai	East Chennai	West Chennai				Rejected
1	28	72	17	11	40	168			
2	32	116	15	20	41	224			
3	8	35	5	6	4	58			
Total	68	223	37	37	85	450			

Source: computed data

As the p-value is less than .05, it is statistically significant at 5% level. Thus, null Hypothesis is rejected. This shows that there is Perfect association between Father's Occupation, Father's monthly income, Mother's monthly income and Location of residence of the students and Cluster groups.

❖ **SOME IMPORTANT OBSERVATIONS & FINDINGS**

➢ Students were receptive to the Digital learning methods adopted during the lock down. **Student's satisfaction level, perception, utility assessment, opinion on aspects of online learning are all positive.** Virtual learning has several merits and these have been recognized by students and indicated in the analysis**.**

➢ **Presently only WhatsApp, Zoom and Google Class rooms are predominantly used** for teaching because of the connectivity and App familiarity among staff and students.

➢ The study has established that **there is association between the Net connectivity facility and Device used and Preference for Class room/Online teaching**

➢ Most of the students use mobile data for connectivity. **Broad band facility** can give fast and uninterrupted connectivity. But **most students don't have access to broadband.** Only 13% of students have broadband access.

➢ Secondly internet access through mobile phone has limited application compared to **desk top or laptop.** Most students (95%) **access NET only through Mobile phones.**

➢ **Compared to Online teaching, students find Class room teaching more effective**. The sudden introduction of virtual class rooms due to the lock down was unprecedented. Both staff and students were not prepared for it. Lack of familiarity and Net connectivity could be the reason for the same.

➢ With better access to broadband services and availability of laptop/desktop for education purpose to students, **we can expect a shift in the preference from class room teaching to online teaching.** With enhanced connectivity the faculty can offer more realistic and near class room environment. **They can use innovative tools, pedagogies, and visual media to make their class rooms lively**.

➢ **Several learning management systems like the Moodle, Course play, Skill soft, MS Teams** are available to make virtual learning more realistic and effective. If the lock down prolongs these LMS systems will come handy to all educational institutions.

➢ Students have given **positive feedback to conduct of online exams for effectiveness, fairness in assessment, convenience and all parameters.**

➢ Colleges could schedule **50% regular classes and 50% online classes** benefiting both the colleges and the students. **College infrastructure** can be put to best use by doing so.

➢ The study has identified **3 distinct cluster of students are Trendy (37%), timely & adoptive (50%), Traditional (13%).**

➢ We can see that vast **majority of the students fall in the first two clusters.** The second cluster '**Timely and adoptive students'** constitute the **major cluster.** They are neutral. But as new paradigms emerge **they will quickly shift and adopt**.

➢ It has also been established that **cluster groups are influenced by the demographic variables**: Father's Occupation, Father's monthly income, Mother's monthly income and Location of residence of the students.

III. CONCLUSION

The Future of Education is digital. Computers cannot replace or do away with teachers. But teachers with digital literacy will be on greater demand. Present generation students are very resourceful and adaptive. So the Faculty should also equip themselves to meet the needs of the students. Adoption of Digital Education systems is the need of the hour for all Higher Education Institutions in India. The COVID-19 lockdown has nailed it on all education institutions. It has set the ball rolling. Indian education system is setting its pitch for

the much awaited transformation.

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