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**A STUDY ON PERCEPTION OF TEACHERS ON USE OF ONLINE TEACHING-
LEARNING APPROACH DURING COVID-19 AND POST COVID-19 IN
MAHARASHTRA**

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ABSTRACT

During the pandemic COVID-19, all over India the Government of India has declared lockdown and since then all higher education institutions are closed down. All stakeholders from education industry such as students, teachers, management and parents were in dilemma about completion of syllabus, conducting internal evaluation exams as well as semester End College and university examinations. Students and parents are worried about their exams, declaration of results and even about new academic year. However the management of the colleges and university authorities have issued circulars following the guidelines of the UGC to complete the academic activities. In period of Lockdown colleges and universities have instructed their teachers to conduct classes and assignments, research guidance, class test online. Even guidance and counselling cells are established and sent it to the students and parents. Committees are established to provide guidance on examination related matters. The teachers are engaged in conducting online classes and even attending webinars, e-workshops and training using various video conferencing apps and learning management system tools. The online teaching learning approach has gained importance and plays an important role in the education field during this pandemic as well as it will be used post COVID-19 period. In this context, the researcher has made an attempt to study Perception of teachers on online teaching- Learning Approach during COVID-19 and Post COVID-19 in Mumbai.

KEYWORDS

Online teaching learning approach, COVID-19, Lockdown, Google classroom, Google forms, Online exams, Online classes, Zoom app, Skype, Web ex, Google meet and Kahoot.com.

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INTRODUCTION¹⁻⁸

Since almost 17th March 2020, all colleges, and universities all over India and Mumbai has closed due to lockdown due to COVID-19 by the Government of India and respective State Government. All stakeholders from education industry such students, teachers management and parents are in dilemma about completion of May – June

syllabus, conducting internal evaluation exams as well as semester End college and university examinations. Students and parents are worried about their exams, declaration of results and even about new academic year. Teachers are concerned about completion of syllabus, conducting of exams and even about evaluation and declaration of results. Management is concerned about conducting exams, evaluation and admission and starting of courses in new academic year.

In period of Lockdown colleges and universities have instructed their teachers to conduct classes and assignments, research guidance, class test online. Even guidance and counselling cells are established and sent it to the students and parents. Committees are established to provide guidance on examination related matters. Various circulars are issued by the colleges and universities providing time to time information to the education stakeholders online during this pandemic.

In this context, the researcher has made an attempt to study Perception of teachers on online teaching-Learning Approach during COVID-19 and Post COVID-19 in Mumbai.

Objectives of the Study

The researcher has framed the following hypotheses:

1. To study and analyse the various video conferencing apps to conduct online classes and Webinars.
2. To study and analyse the various tools available to complete internal evaluation assignments and test.
3. To study the awareness of and use of Learning Managing System (LMS) and e-content development tools by the teachers.
4. To study the perception of the teachers towards online teaching learning approach during and post COVID-19.
5. To give suggestions for effective use on online teaching learning with offline teaching.

Hypotheses of the study

On the basis of the objectives framed, the following hypothesis are framed,

1. Commerce teacher faculty make the wide use of online teaching learning tools as compared to Arts teaching faculty during the lock down of COVID-19.
2. Zoom is widely used app to conduct classes and webinars online.
3. Google Forms is widely used tool to make quizzes by teachers during COVID-19.
4. Teachers perceived that post COVID-19 they prefer Blended teaching learning over offline teaching.

Research Methodology

Both primary and secondary sources of data have been utilized for the research study. Data analysis has been by using statistical tools to draw suitable conclusion and suggestion.

Sources of Data

Primary Data

Survey method is used to collect primary data for the study. Survey is conducted through a structured questionnaire.

Secondary Data

The study is also based on the secondary data. The secondary data is collected from websites of the various online teaching learning apps such Talentmanagement.com

Sample Size

The researcher has used convenience sampling technique for the selection of the respondents for the study questionnaire. The Sample size is fixed to 50 teacher from 50 higher education institutions from various parts of Maharashtra.

Tools for online teaching-learning

The various online apps and tools available for online teaching learning are studied in three categories which are as:

Video conferencing apps used for online meeting of teachers and students

Conferencing apps give the benefits to chat with video with anyone in the world for free of cost to students to deliver lectures for language teachers. During the lockdown period these apps are widely used by the educators, some of which are discussed herewith are:

Skype

Skype is an effective and easy to use app as virtual class room. The Teacher can conduct classes from any place and students can learn from any place.

Zoom

Like a Skype, another free video conferencing tool is Zoom has recently come on the scene for online teaching learning. The Zoom has advantages over Skype: we can record conversations to use for later assessment and feedback. It is a good tool for helping our students to use Videos PPTs I can be presented while conducting lectures using zoom app. It is available in free version and paid version also. Free version have limited services. But during lock down period almost all educators use Zoom app to conduct online classes or webinars.

Cisco Webex

It is also mostly used videoconferencing app to conduct meeting and online classes and webinars with use of videos, audios and screen sharing. It is also have free version with limited features and paid version with special features.

Microsoft team

Like Zoom this app is also widely used by the educator to conduct meetings, workshops seminars and online lectures. This app also provides the features of screen sharing, Interaction with chat, audio videos and recordings of the session. It is a paid app.

Learning Management System tools: The following widely used LMS Are

Talent LMS

Talent LMS is a good tool for Blended teaching learning. It is used for discussion forum. Courses can be build by re-using Presentations or Videos. Talent LMS is also used to conduct the survey even during lectures. It also support to multiple types of questions and a variety of types of test. It is available for free for month with limited use with 5 users and 10 courses.

Socrative

It is tool which can be used in blended teaching learning. The teacher can create quiz while delivering the lecture in the classroom to interact and engage the student in the lecture. In this tool teacher allows room numbers to the students to

enter into the room and complete the quiz test. The teacher receives result spread sheet after completion of Quiz or test

Edmodo

Edmodo is free educational tool connecting teachers and students. In this tool, teachers can create online groups, and can provide educational materials to the student. The teacher can measure the performance of the students and same can communicate with parents and students.

Kahoot.com

It is an educational platform that is based on games and questions. Through this tool, teachers can create questionnaires, discussions, or surveys that complement academic lessons. The material is projected in the classroom and questions are answered by students while playing and learning at the same time. Kahoot promotes game-based learning, which increases student engagement and creates a dynamic, social, and fun educational environment. Free and Paid plans are available. Paid plans start with minimum charges from \$5 per month per teachers for higher education

Google Classroom

It is a free web service developed by Google for schools and higher education that can be used to create, distribute, and grade the assignments. The Google Classroom is used to share the files between teachers and students.

Google Classroom can use documents, Google sheets, slides, Gmail, and calendar to manage student and teacher communication. Students can be invited to join a class through class room code provided by the teachers, or automatically imported from a school domain. Teachers can create, distribute and mark assignments all within the Google ecosystem. The teacher can create for each class a separate folder where the student can submit work given to them by teachers as assignments or projects.

Google Drive

The Google documents and worksheets can be edited with the help of Google drive and can be shared with students who has Google account for

collaborative classroom activities and projects. It is used with Google classroom.

Google Hangouts

The alternative to Skype for bringing remote groups of people together to communicate and collaborate is Google Hangouts. Online classes with Hangout can be conducted with recordings

Tools to conduct online Tests and Quizzes: The following tools are studied

Classmarker.com

Class Marker is a Quiz maker can be easily used to conduct online quizzes, tests and long answer and short answer tests. It is used to conduct online exams without paper work.

It is available with free plan as well as paid plan. Free plan is available with 100 Credits per month that means 1,200 Tests per year can be conducted with limited features.

Paid plan 1 is available 400 Credits per month. 4,800 Tests can be conducted per year with all features included. Paid Plan 2 is available with 1,000 Credits per month. 12,000 Tests can be conducted with grading per year including all features.

Kahoot.com

It is also very good tool for online teaching learning with offline teaching. It is used to conduct online lecture with presentation, creating tests, quizzes polls during the lecture. Kahoot is used with Microsoft teams, Google Hangouts, Zoom. Kahoot can be used in classroom to create Quiz and open-ended questions for engagement, Polls and word clouds for audience interaction can be created.

Testmoz

Testmoz is a tool that allows you to create automatic grading tests and quizzes. Each test create has a unique URL which can be used to edit tests later stage and to share with others. Testmoz also provides detailed reports which can be analysed by the teachers.

Google forms

Google Forms is also an app of google used to create forms for data collection purposes. Students and teachers can use Google Forms to make surveys, quizzes, or event registration sheets. It can

be shared with respondents by sending a link, emailing a message. Data collected using the form is stored in a excel sheet. Google Forms is an excellent free option which can be used for various academic purposes free of cost with feature of availability of result can be used for conducting research survey, student's survey, customers survey to conduct online tests, even to take feedback of the students on courses, programme, teachers and workshops and seminars with varied options.

DATA Analysis and findings of the study

The responses on Perception of teachers on online teaching learning have been collected from 50 teachers from 50 colleges and university departments from arts and commerce faculty. The result of the responses has been presented as under:

The findings of the Study

76 percent female teachers and 24 percent male teachers participated in survey out of which 74% teachers were from commerce faculty and 26% were from arts faculty. 70% teachers were permanent and 30% teachers were temporary teachers. 72% teachers were teaching at UG level, 16% were PG teachers and 12% teachers were teaching at UG and PG level also.

As during lockdown period, all teachers were doing work from home such taking online classes for the students, creating tests online for the students attending webinars online on various topics. Some teachers were conducting webinars, workshops online. Some were engage in developing contents teaching material for the students, creating video lectures to deliver at various seminars and workshops, attending meetings of various academic bodies, giving research guidance to the research students online, checking the work done by the researchers online. Principals head of the department were engaged in establishing career and guidance cell and even guiding and counselling the students and their staff during this COVID-19 period, making technical arrangements for conducting classes, tests, quizzes and even webinars and workshop. They were also engaged in disbursement of salary to the teaching and non teaching staff online, issuing online circulars from

time to time during this COVID-19 period. In taking into consideration this some questions were asked to the respondents on their engagement online to perform various activities.

The findings of this are under

1. 66% teachers conducted online classes and provided research guidance to the students out of which 60% are from commerce faculty and 6% are from Arts faculty and 34% did not conducted classes online out which 28% are from arts faculty.
2. 100% teachers attended or conducted workshops and webinars online organised on varied topics.
3. 100% teachers each either attended or conducted webinars and workshops on Research Methodology and online teaching learning tools. 60% teachers even attended webinar on e-content development, 64% attended webinar on Impact of COVID-19 and 14% attended webinars on the topics other than these.
4. Those teachers who have conducted online classes for the students or used online tools to attend or deliver lecture at webinar, 92% used Zoom app, 58% used Web Ex app, 66% used you tube channel, 60% used Google classroom and 40% used Google meet.
5. 44% teachers conducted online test for the students as part of internal evaluation and 56% did not conduct any online test.
6. 76% teachers are aware about various online tools to conduct online exams and 24% not aware about online tools to conduct the exams.
7. Those who are aware on online tools to be used to conduct online exams out of which 76% aware about Google classroom, 54% aware on Google sheets, 22% aware about Kahoot.com, 14% aware about class marker.com, 8% aware on vetvox, com and 6.67% about Testmoz.
8. The teachers who have conducted online tests or assignments for the students have used various tools to create and conduct tests online. 46% teachers use google forms to conduct online test, 28% used Google classroom, 16% used Google sheets, 6% used Kahoot.com and class marker.com. No one used Vetvox.com and Testmoz.
9. E-content development is an integral part of the education system. UGC is very keen on implementation of SWAYAM online Mooc courses in the curriculum of the UG and PG courses of the colleges and Universities. As per the guidelines of the UGC universities has introduced transfer of 20% credit through SWAYAM MOOC courses. In this context, it is essential for the teachers to develop their online SWAYAM MOOC courses and E-content development is necessary step towards it. So questions were asked to the respondent teachers on their awareness on E-content development tools. It is come to know that 74% teachers from various colleges are aware on various tools of E-content development and 26% did not aware.
10. 50% of the teachers did not used any E-content development tool and 50% teachers used tools for E-content development and many of them have used more than one tool. Those who have used tools 92% used Screen Recorder, 20% used Open Camera to create videos for online classes. 12% teachers used Lexis Audio Editor and 8% used Kine Master. No one used Cinema F-5 Lite tool.
11. 58% teachers has used various online apps to give guidance and counselling to the students during COVID-19.
12. The question was asked to the teachers about benefits of Online Teaching Learning approach used during COVID-19 and to be used post COVID-19. 44 % teachers say that Time Saving and Time Management is the benefit off online teaching learning approach, 30 % said that Reach to Large masses the benefit, according to 30% teachers it is Effective way of teaching and learning, 28% opinion that there is.

Scope for Online Interaction, 58% says that Students can access it at any time and at any place, 44% told that it is Permanent Record of Lecture and 52% teachers recorded all the above benefits of online teaching Learning approach.

The question was asked to the teachers to record limitations of Online Teaching Learning approach used during COVID-19 and to be used post COVID-19. As per the responses given by the teachers, 52% says that there are Technology issue to conduct online classes. 50% teachers recorded that there is issue Lack of Control over the students while conducting online classes, 40% opinion that there is lack of Engagement from the students side, 24% said that there is lack of personal touch while conducting online lectures. 44% teachers' opinion that online teaching is not useful for Practical courses, 16% teacher old that they have no knowledge of ICT, 18 % told that there will be resistance from teachers' side for online teaching learning and 42 % recoded all the above limitations of online teaching learning approach.

The respondent teachers were asked their perception on impact of online teaching learning approach during COVID-19 and Post COVID-19, the finding of the responses are

1. 62% of the teachers post COVID-19 online teaching learning will get more importance over offline teaching, however 38% teachers says that offline teaching is more important.
2. 52% teachers says that online teaching learning will affect classroom teaching and 48% says that it won't affect classroom learning.
3. 18% teachers opinion that online teaching will reduce the burden of teachers, however 52% teacher thank that it will not reduce any burden of teachers and 30% teachers says that it may reduce the burden of teachers.
4. 34% teachers think that online teaching will reduce the requirement of additional teachers, 30% teachers said that it will not reduce the requirement of additional teachers and 36% teachers opinion that it

may reduce the requirement of additional teachers.

5. 40% teachers believed that online teaching will create unemployment to the temporary teachers, 26% teachers says that it will not create any unemployment to the temporary teachers while 34% think it may create unemployment to the temporary teachers.
6. 68% teachers prefer Blended Teaching learning post COVID-19, 22% teachers still prefer offline teaching post COVID-19 and 10% prefer online teaching post COVID-19.

Testing of Hypotheses

The hypotheses are tested on the basis of the results of the responses of the respondents which is converted percentage to analyse the result.

Commerce teacher faculty make the wide use of online teaching learning tools as compared to Arts teaching faculty during the lock down of COVID-19. The stated hypothesis is tested on the basis of the result of the responses presented in Table No.1.

The result of the responses states that 66% teachers conducted online classes and provided research guidance to the students out of which 60 % are from commerce faculty and 6% are from Arts faculty and 34% did not conducted classes online out which 28% are from arts faculty(Reference: Fining No.II(1). Therefore the hypothesis "Commerce teacher faculty make the wide use of online teaching learning tools as compared to Arts teaching faculty during the lock down of COVID-19" is accepted.

Zoom is widely used app to conduct classes and webinars online

The stated hypothesis is tested on the basis of the result of the responses presented in Table No.2.

Those teachers who have conducted online classes for the students or used online tools to attend or deliver lecture at webinar, 92% of them used Zoom app. Some of the teachers have used more than one app. The stated hypothesis "Zoom is widely used app to conduct classes and webinars online" is accepted on the basis of results of the respondents.

Google Forms is widely used tool to make quizzes by teachers during COVID-19

The stated hypothesis is tested on the basis of the result of the responses presented in Table No.3.

The teachers who have conducted online tests or assignments for the students have used various tools to create and conduct tests online. 46% teachers use Google forms to conduct online test, 28% used Google classroom, 14% used Google sheets, 6% used Kahoot.com and class marker.com. No one used Vetvox.com and Testmoz. The stated hypothesis "Google Forms is widely used tool to make quizzes during COVID-19 by teachers" is accepted.

Teachers perceived that post COVID-19 they prefer Blended teaching learning over offline teaching

The stated hypothesis is tested on the basis of the result of the responses presented in Table No.4.

68% teachers prefer Blended Teaching learning post COVID-19, 22% teachers still prefer offline teaching post COVID-19 and 10% prefer online teaching post COVID-19. The stated hypothesis "Teachers perceived that post COVID-19 they prefer Blended teaching learning over offline teaching" is accepted.

Conclusions based on the Findings

On the basis of the findings of the research study, the researcher has put forth the following conclusions.

1. The maximum number of teachers who engage in online teaching learning process during COVID-19 are female from UG level and from commerce faculty whose job is of permanent nature and from Commerce faculty.
2. Very few teachers did not conducted online classes however they communicated students using whatsapp and telephonic talk.
3. All teachers participated in survey were engaged online during COVID-19 o to attend various workshops and webinars.
4. Almost all teachers attended online workshops and webinars on Research Methodology and online teaching learning

tools followed by Impact of COVID-19 on various sectors and then webinars on E-content development. This shows that teachers are engaged in doing work from home either to conduct webinars or to participate in webinars.

5. Zoom app is widely used by the teachers either to conduct online classes or to conduct and attend the webinars followed by you tube, Google Classroom, Web Ex and Google Meet. There is no harm using Zoom app, it is available free to use for limited time, paid service is also available with varied features. Zoom app is very easy to handle with screen sharing option to use PPTs and videos, chat option to ask queries and questions and even to see live to each other. Even recordings are available post session.
6. Majority teachers were used online tools to guide and provide counselling to the students to resolve queries of the students and their parents.
7. Less than 50% teachers used online tools to conduct online tests, quizzes and to complete assignments and projects.
8. Those who have conducted online tests, quizzes and assignments and projects used Google forms and Google classrooms for it. Very few used class marker.Com and Kahoot.Com.
9. The majority of the teachers surveyed are aware about various tools available for e-content development and used various tools for content development. The highly used tool is Screen Recorder. The other tools like Kine Master, open Camera are rarely used. These tools are effective to edit and manage the videos but to some extent need training to use it.
10. The benefits of Online Teaching Learning approach used during COVID-19 and to be used post COVID-19 which listed by the teachers are: Time Saving and Time Management, Reach to Large masses the

benefit, Effective way of teaching and learning,

11. Scope for Online Interaction, 58% says that Students can access it at any time and at any place, Permanent Record of Lecture.
12. The limitations of Online Teaching Learning approach used during COVID-19 and to be used post COVID-19 recorded by the teachers are Technology issue to conduct online classes, Lack of Control over the students, lack of Engagement from the students side, lack of personal touch online teaching is not useful for Practical courses, Lack of knowledge of use of ICT to teachers, resistance from teachers' side for online teaching learning and 42 % recoded all the above limitations of online teaching learning approach.
13. Teachers are opinion that online teaching will get more importance over offline teaching post COVID-19, some of them think that online teaching will reduce the burden of teachers at the same time they think that online teaching will reduce the requirement of additional teachers so temporary teachers may lose their jobs.
14. A large group of teachers opinion that blended teacher learning will be effectual post COVID-19 where teacher may use classroom teaching blended with online teaching learning even to be used in delivering lecture in class to engage and interact student attention in the class.

Suggestions on the basis of the Study

On the basis of the survey on perception of 50 teachers in higher education institutions on use of online teaching-Learning Approach during COVID-19 and Post COVID-19 in Mumbai, the researcher has put forth the following suggestions:

1. As blended teaching learning is good approach for higher education institutions to cater the needs of various stakeholders, all Colleges and Universities now have to make compulsory use of online teaching learning tools in their curriculum.

2. The teachers from Faculty of arts have negative approach towards online teaching learning the approach of these teachers is needed to be changed from traditional teaching to blended teaching learning. For this purpose college and universities should assign API score for use of online teaching learning tools with classroom teaching. Even for promotions under CAS, condition to attend minimum one workshop and training program for virtual class teaching and E-content development is to make compulsory.
3. To use online teaching and online class test tools training to the teachers is must so colleges and universities should organise workshops and training programs in their own places free of cost so that teachers are not to make arrangements to attend the such workshops and training programs at other Colleges or Universities in the working hours of the teachers apart from their regular teaching workload.
4. Training to teachers is to be continues process. Instead of organizing one workshop or one training program. Training is to be given to the teachers on regular basis in their computer Lab. Paid Services of the instructor.
5. If the teachers are willing to attend such programs outside the institutions then need to be taken care of that these teachers can easily get duty leave and financial grant to attend such programs.
6. The colleges should keep some budget provision for amount to spend on acquisition of various online teaching learning tools so that teachers can teach and students can learn online. Universities should give permission to the university department to keep some budget provision for acquiring such tools and instruments.
7. It is fact that in classrooms of the university departments basic provision to use such tools is lacking. LCD projectors are not installed and where they are installed not working. No maintenance of such projectors. There is no

wifi facility available in the classrooms. In some colleges, wifi facility is available only for staff and not to the students. To use online teaching tools in the class availability of basic requirements to use such tools need to be provided.

8. In remote areas network is the measure issue so to use such tools in the colleges of remote areas, such issues need to be taken care of by the college management.

Table No.1: Data of the Teacher conduct online classes

S.No	Data of the Teacher conduct online classes						
1	Conduct of Online Classes	Yes	33	66 %	Commerce Faculty	30	60%
					Arts Faculty	03	6%
		No	17	34%	Commerce Faculty	03	6%
					Arts Faculty	14	28%
2	Total		50	100		50	100

Source: Primary data collected from respondents

Table No.2: Use of App in Online Teaching

S.No	APP	Frequency	%
1	Zoom	46	92
2	WebEx	29	58
3	Google Classroom	33	66
4	You tube	30	60
5	Google Meet	20	40
6	Total	50	100

Source: Primary data collected from respondents

Table No.3: APP to conduct online test

S.No	APP to conduct online test	Frequency	%
1	Google Forms	23	46
2	Google Classroom	14	28
3	Google Sheet	07	14
4	Classmarker.com	03	6
5	Kahoot.com	03	6
6	Testmoz	0	0
7	Vetvox	0	0
8	Total	50	100

Source: Primary data collected from respondents

Table No.4: Preference of Teacher for type of Teaching

S.No	Type of Teaching Learning	Frequency	%
1	Offline Teaching Learning	11	22
2	Online Teaching Learning	05	10
3	Blended Teaching Learning	34	68

Source: Primary data collected from respondents

CONCLUSION

In the epidemic of COVID-19, the education industry has shifted from traditional mode of teaching to online mode of teaching. The teachers in higher education institutions has accepted the online teaching mode to conduct the classes, exams, and to attend webinars related to development of research activities and e-contents during the period of COVID-19. The teachers are taken and some are ready to take training to develop e-content to conduct online teaching and other academic activities. They have accepted the change occurred in education industry during COVID-19 period. They have completed their responsibility of completing the curriculum and other academic activities. They are capable to use online teaching tools and to develop e-contents. However they are of the opinion that post COVID-19, they will focus on blended teaching learning approach as the online teaching learning should be the support to the offline teaching. The online teaching learning has many benefits at the same time it has many challenges and difficulties also. So online teaching learning is not the only approach to be used but it is to be used as a support to offline teaching learning even post COVID-19.

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CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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