Use of Digital Learning Resources in the Present Situation of COVID-19 Pandemic in Maharashtra State

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Abstract: *Since March 2020, India has seen the surge in COVID-19 infection throughout the various sections of the society across all states and union territory. The COVID-19 pandemic has affected all sectors in India. During the lockdown, migrant laborers went back to their own native places resulting in stoppage of manufacturing, assembling, trading and construction activities. The pandemic affected educational sector also. Many of the academic establishments and universities faced the problem of completing their teaching sessions. Due to wide spread of the corona virus in the society, government at center and at state took a decision of lockdown in the regular activities with a purpose of breaking the chain of spreading the virus. The educational establishments and universities forced to look into new ways to complete their remaining term. Purpose of the Study: The purpose of the study is to understand the effectiveness of usingDigital Learning Resources during the COVID-19 pandemic situation at the University level programs of Maharashtra State. This research paper tries to relate the significant aspects of digital mode as against the traditional mode of teaching – learning process. This paper also studies the challenges and opportunities of adopting the digital mode as a new method of teaching – learning process in the affiliated institutes and universities of Maharashtra. Methodology: The researcher adopted descriptive research method for this research paper. Literature review was carried out to understand the history of pandemic in India and the developments in the area of digital learning resources and its use in India. The secondary data was collected through various articles and research papers published in journals. The primary data was collected through a structured questionnaire online. The questionnaire was circulated amongst the students and faculty members by using Google Forms. The sample size of 100 students and 120 faculty members were taken for drawing objective related findings. The researcher used statistical tools such as MS excel and SPSS 21 for analyzing the collected data. Findings: Upon carrying out data analysis, the observations and finding were drawn. The major finding of the research indicates that most of the institutes affiliated to various universities have adopted digital mode for completing their remaining term. At the same time it is observed that, the institutes gone with digital mode have faced lot of challenges in smooth conduct of the sessions. The main challenge listed is unavailability of infrastructural support in the rural part of the state along with connectivity issues. It is also observed that students and faculty members still feel that traditional mode of teaching – learning process is more effective than digital mode.*

Keywords: Digital Learning Resources, Digital Platforms, Challenges and Opportunities, Traditional and Digital teaching – learning modes, COVID-19 pandemic

1. Introduction

Human spread and movement across the world due to civilization, infectious diseases were the acquaintance with them. Diseases have caused continual suffering to humanity since early days. There was marked shift observed in the spread of these diseases as the trade between different countries and places augmented. This research paper is an effort to understand how this pandemic has affected the various fields of transactions. The main objectives of the study are:

- To study the impact of COVID-19 pandemic on the educational sector of Maharashtra Universities.
- To understand the trend in use of Digital platform in conducting the academic activities.
- To find out major challenges faced by the teacher and student community during COVID-19 situation.
- To study the opportunities in using digital tools.
- To compare the pros and cons of digital platforms versus traditional teaching – learning mode.

Hypothesis of the study:
1) COVID-19 has created more opportunities than the challenges for Digital teaching - learning process.
2) During the COVID-19situation in Maharashtra, traditional methods have significant impact compared to Digital teaching – learning mode.

Digital Learning Resources – History and Developments in India

India has made consistent progress in the educational sector since ancient age. Gurukuls were the educational centers of then states of India. "Takshasila" was the earliest recorded center for higher education possibly8th century BCE. Many more such institutions started imparting practical knowhow such ass medicine etc. between the periods of 500 BCE to 400 CE. Nalanda and Manassa were important amongst them. The literacy rate has improved a lot after the independence due to major efforts from the governments. E-learning was the another platform which is becoming popular and need for it has grown over the period of time during end of 20th century and during early 21st century across the world. Though the number of PC and Internet users in the country is growing, they form a miniscule part of entire Indian population. Every new technology, when

exposed to the public, faces many difficulties. It takes time for the people to get familiar with it. (Dr. Veena R Humbe, 2011)[1].

Currently, Stanford University – California, MIT – Cambridge, California Institute of Technology, University of Oxford, University of Cambridge etc. are the leading institutes across the world in offering courses and programs based on e-learning. In USA and Europe enrollment of online education is growing at the speed of 12% to 16% per annum. (Trends and opportunities in the Online Learning Market, 2019)[2]. Although, India is late entrant in this field but India has swiftly matched the requirements of the e-learning process. Due to globalization and due to deliberate efforts to improve the economic condition of India, educational systems have revamped its status and tried to match the requirements of the globe. This has resulted in picking up pace of e-learning in India.

The online education market in India was valued at INR 39 billion in 2018 and is expected to reach INR 360.3 billion by 2024, expanding at a CAGR of ~43.85% during the 2019-2024 periods. Ease of learning, flexibility and a wide range of study materials have influenced the overall growth of the industry (BUSINESS WIRE, 2020)[3].

Digital Landscape in India

Internet Users' growth in India

Source: IAMAI, World Bank, CNNIC, Technopak Analysis
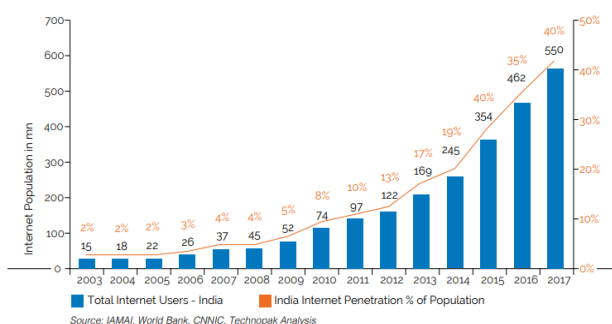
The above graph indicates the rapid growth of internet users in India. As per the above graph, in 2017 there were approximately 550 users of internet found in India. In India K – 12 (Kindergarten to 12th Standard) is the most popular and attractive segment which is being offered the most e-learning courses. Higher Education, Professional Courses, Skill Development, MOOCs etc. are the other segments in India have also seen the large usage of online education(Aurobindo Saxena, 2016)[4].

The Digital India Initiative is one of the key initiatives with a long-term vision in providing quality and technologically aided education. Government of India in the year 2011 launched 'The National Optical Fiber Network'aiming to shape and advance Internet infrastructure throughout the nation. National Mission on Education through Information and Communication Technology (MNEICT) has been launched in the year 2009 by government of India to leverage the potential of ICT in teaching and learning process for the benefit of all the learners of Higher Education Institutions across India(Arnab Kundu, 2018)[5]. 'Swayam' is the platform made available by HRD Ministry of Government of India in association with All India Council for Technical Education (AICTE), National Programme on Technology Enhanced Learning (NPTEL), University Grants Commission (UGC), Consortium for Educational Communication (CEC), National Council of Educational Research and Training (NCERT), National Institute of Open Schooling (NIOS), Indira Gandhi National Open University (IGNOU), Indian Institute of Management, Bangalore (IIMB) and National Institute of Technical Teachers Training and Research (NITTTR) for skill up gradation and learning.

COVID-19 pandemic and Digital Learning Tool
All around the world, education establishments are using the digital learning tools for their maximum advantage during the COVID-19 pandemic crises. Google Classroom, Zoom conferencing app, Microsoft education, Cisco Webex Meeting, Google Meet etc. are the some of the digital tools were used by the educational institutes of Maharashtra. Khan academy, TEDed, Minecraft Education are some of the digital resources engaged the students during this situation. Corona virus created unprecedented challenges in-front of the educational sector of India. Traditional way of teaching – learning process got affected due to shutting down the educational institutes across Maharashtra.

To promote digital learning during the COVID-19 pandemic, Ministry of HRD released key digital learning platforms under the initiatives of Government of India for both schools and higher education. This includes '*Diksha*' – 80000 e-books bank created by CBSE/NCERT and state/UT and '*e-Pathshala*' covering 1886 audios, 2000 videos, 696 e-books and 504 Flip books for class 1st to 12th in different languages. *Atal Innovation Mission (AIM)* under NITI Aayog has launched a mission of 'Thinker from Home' to fuel the experimental learning(Naba Suroor, 2020)[6].

This situation actually brought in the facts about structural imbalance amongst the urban and rural population in light. The very essential requirement to have e-learning in place is the availability of electricity. In India, the situation of

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providing electricity is very poor. As per Mission Antyodaya, a nationwide survey of villages conducted by the Ministry of Rural Development in 2017-18, showed that 16% of India's households received one to eight hours of electricity daily, 33% received 9-12 hours, and only 47% received more than 12 hours a day. While solar chargeable smartphones can indeed be used for watching educational videos, they cannot be used by students for writing lengthy assignments. As per a peer study, 24% of Indians own a smartphone, but only 11% of households possess any type of computer(UJJWAL SINGH, 2020)[7].

Challenges in e-learning

Some of the challenges in e-learning during the COVID-19 situation in India are listed below:
- Digital infrastructure is the biggest challenge.
- Unavailability and/or short supply of electricity in rural as well as some part of urban India is a major hurdle.
- Internet speed and supporting hardware such as smart phones, tabs and computers are not available to all students.
- Difficulties in managing schedules of teachers and learners.
- Technical snags during the session, Internet connectivity and speed are a challenge.
- e-learning is not effective in case of imparting practical knowhow.
- Cost of digital learning is another challenge.
- No immediate feedback from the learners' side possible.

Data Analysis and Observations

The research assignment undertaken to study the effectiveness of the digital tools in COVID-19 situation and compare the traditional mode against the digital mode of teaching – learning process, researcher had administered the survey using Google Form. Data was collected from 120 faculty members and 100 students of various institutes and Universities of Maharashtra. Researcher also attended some of the webinars during this period and made following observations:
- In Maharashtra, there is 01 central university, 23 state universities and 21 deemed universities.
- 2.95 million Learners are there in Maharashtra studying in these universities.
- There are around 1 million Swayam, MOOCs, NPTEL users.
- Government, various Universities, UGC and AICTE are encouraging faculty members for online content development.
- Government had advised National Testing Agency (NTA) to work-out an efficient way of conducting the entrance exams during the current COVID19 crises.

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[7]UJJWAL SINGH, R. S. (2020, June 08). *Digital Education and COVID19: Addressing the tragic state of students in the Indian Education System.* Retrieved July 03, 2020, from THE LEAFLATE: https://theleaflet.in/digital-education-and-covid19-addressing-the-tragic-state-of-students-in-the-indian-education-system/

- Experts suggested a formula to tackle VUCA (V- Volatility, U – Uncertainty, C – Complexity and A – Ambiguity) world by a solution of V- come out as Victorious in Volatile situation, Unite in uncertainty, make Compatible in the Complex situation and Adapt the new technology in the Ambiguous time.
- Building compatible infrastructure in a major challenge.
- AICTE launching a '*Prabha*' channel through DTH services with 33 channels on different educational sections.

Discussion points on the collected data

Hypothesis Testing: Researcher had stated following hypothesis related to the objectives of the study and tested using SPSS 21 software:

Hypothesis 1: COVID-19 have created more opportunities than the challenges for Digital teaching - learning process
- H1_ COVID-19 have created more opportunities than the challenges for Digital teaching - learning process
- H0_ COVID-19 have not created more opportunities than the challenges for Digital teaching - learning process

Correlations

		O _01	O _02	O _03	O _04	O_05	O_06
O_01	Pearson Correlation	1	.864**	.913**	.929**	.925**	.907**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N		120	120	120	120	120
O_02	Pearson Correlation	.864**	1	.915**	.881**	.823**	.889**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	120		120	120	120	120
O_03	Pearson Correlation	.913**	.915**	1	.913**	.834**	.932**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	120	120		120	120	120
O_04	Pearson Correlation	.929**	.881**	.913**	1	.897**	.945**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	120	120	120	120	120	120
O_05	Pearson Correlation	.925**	.823**	.834**	.897**	1	.862**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	120	120	120	120	120	120
O_06	Pearson Correlation	.907**	.889**	.932**	.945**	.862**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	120	120	120	120	120	120

**. Correlations is significant at the 0.01 level (2-tailed)

The above data shows that the alternative hypothesis H1 is accepted and strongly correlated. There are no indications from the data that the challenges are more significant than the opportunities lie in smooth conduct of digital mode of teaching – learning process. It shows that the respondents agreed upon that challenges could be overcome with proper approach towards the digital mode. Hence, COVID-19 have

created more opportunities than the challenges for Digital teaching - learning process hypothesis proved.

Hypothesis 2: Traditional teaching learning mode used pre COVID-19 pandemic lockdown is more effective as compared to digital teaching learning mode used during COVID-19 pandemic situation

- H1_Traditional teaching learning mode used pre COVID-19 pandemic lockdown is more effective as compared to digital teaching learning mode used during COVID-19 pandemic situation
- H0_Traditional teaching learning mode used pre COVID-19 pandemic lockdown is not effective as compared to digital teaching learning mode used during COVID-19 pandemic situation

Correlations

		D_1	D_2	D_3	D_4
D_1	Pearson Correlation	1	.900**	.866**	.933**
	Sig. (2-tailed)		.000	.000	.000
	N	120	120	120	120
D_2	Pearson Correlation	.900**	1	.948**	.931**
	Sig. (2-tailed)	.000		.000	.000
	N	120	120	120	120
D_3	Pearson Correlation	.866**	.948**	1	.931**
	Sig. (2-tailed)	.000	.000		.000
	N	120	120	120	120
D_4	Pearson Correlation	.933**	.931**	.903**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	120	120	120	120

**. Correlations is significant at the 0.01 level (2-tailed)

The above data shows that traditional methods of teaching – learning methods have significant impact than the digital mode. The respondents felt that they are more comfortable in traditional mode against the digital mode in both delivery and learning is concerned.

Percentage of syllabus completion
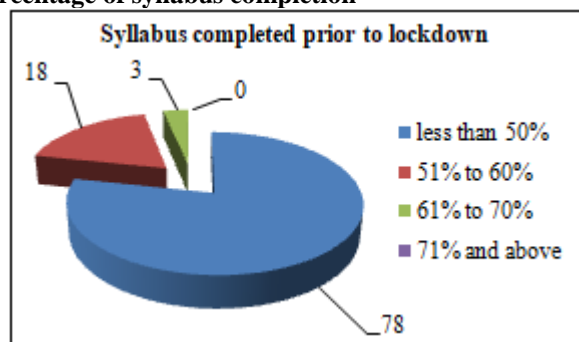
From the above graph, it is observed that more than 78% respondents registered that only 50% or less than 50% syllabus was covered prior to lockdown. Hence, it is clear from the data that majority of institutes or universities could only complete their 50% syllabus during the semester.

Digital Teaching – Learning Mode
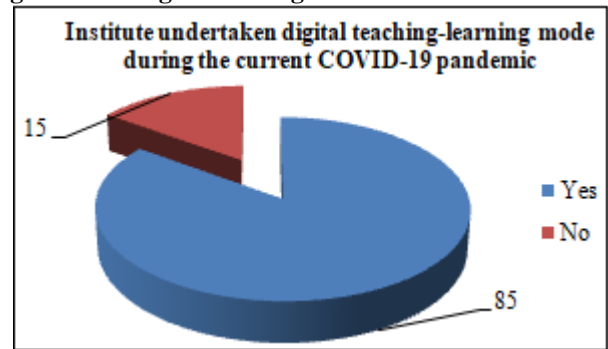
Above graph specifies that 85% of the respondents agreed that their institute or university has gone for digital teaching – learning mode during the COVID-19 situation after the lockdown declared and tried to complete the unfinished syllabus.

**Well equipped for digital mode of teaching – learning process**
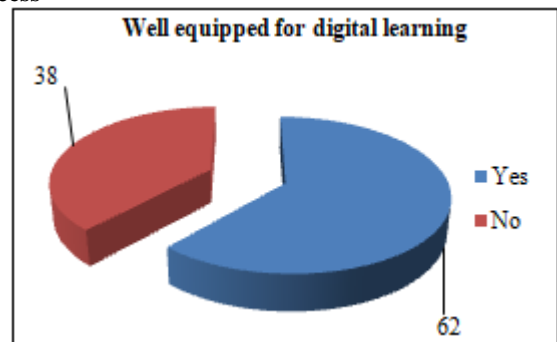
62% faculty members and students felt that they are well equipped to go for digital mode of teaching – learning process during the COVID-19 crises and rest are still feel that they are short of infrastructural aids.

Attendance of the digital sessions
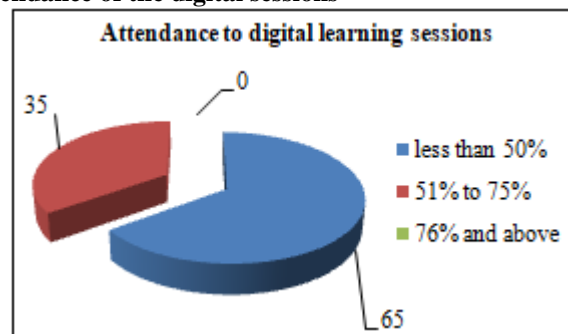
The above graph indicates that only 35% respondents feel that they had attended digital session till date more than 51% and less than 75%. There is no one who had attended sessions more than 75%. This suggest that although earlier data suggest that 62% of them are well equipped with all required resources to attend the sessions, but the fact that no one has attended the session more than 75%. This brings in the issue of controlling the class attendance.

Digital platforms used
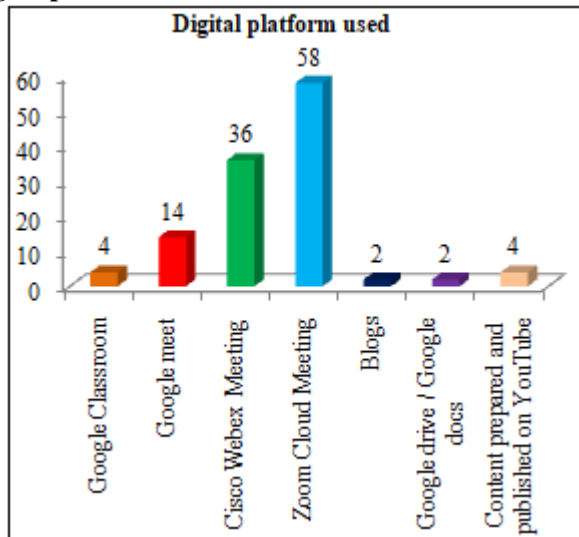
From the above graph, it is observed that Zoom Cloud Meeting is the most popular used digital tool in conducting the sessions followed by Cisco Webex Meeting. The least used digital platforms are Blogs, Google docs and Google classrooms along with content published on YouTube channel.

Effectiveness of knowledge sharing on digital platform
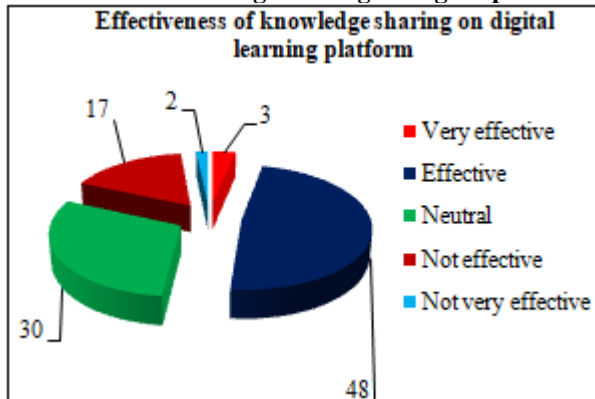
Above graph indicates that almost 48% respondents felt that the digital mode of teaching – learning process is effective. But at the same time there are large numbers of respondents

i.e. 30% are neutral opinion on the effectiveness of the digital sessions.

Traditional mode versus Digital mode of teaching – learning process
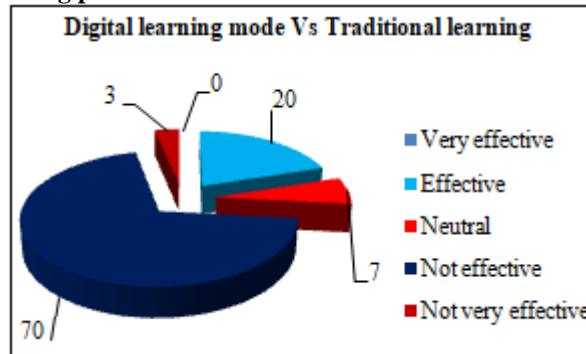

70% of respondents recorded their view that digital mode of teaching learning process is not effective against the traditional mode. The above graph also indicates that 7% respondents feel that digital mode is not very effective when compared with traditional mode.

Threats to use digital platform
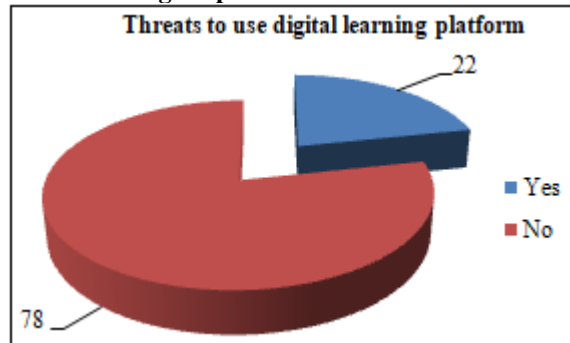
The above graph shows that 78% respondents are not worried about the treats of using the digital platforms as there were some rumors in the social media about these apps and digital platforms.

Opinions of respondents on various aspects of digital teaching learning mode
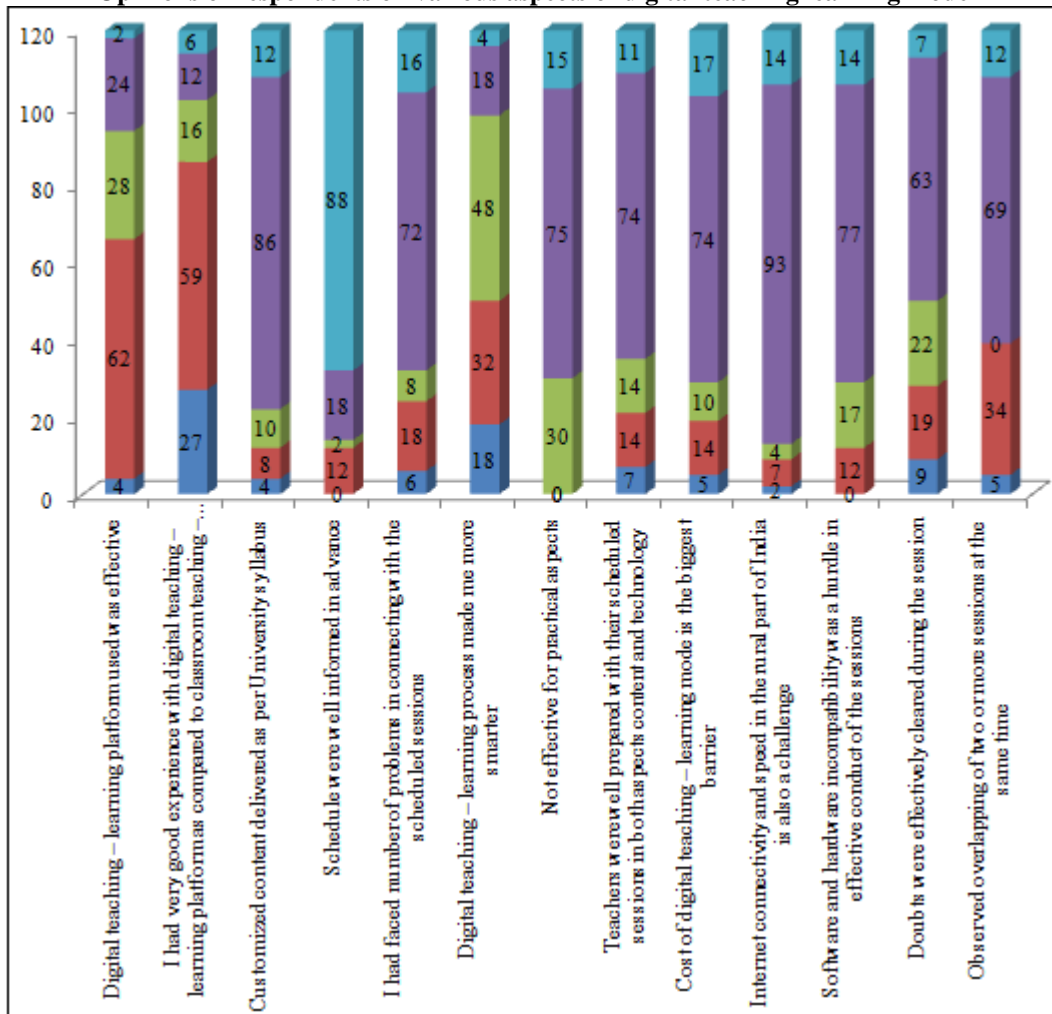
The opinion of the respondent was registered on various aspects of digital teaching – learning mode used during the COVID-19 situation after the lockdown declared. Based on the above data and graph it can be observed that internet connectivity speed in rural areas is a challenge in conducting digital sessions. Although, the schedules were well informed to the students and the content was customized and delivered according to the university norms, the respondents were not very satisfied with the digital mode of teaching learning. Majority of respondents felt that software and hardware compatibility issue is another hurdle.

2. Findings and Conclusion

Following findings were drawn from the data analysis:

- India has seen various pandemics over the two centuries which has impacted India economically and mortality.
- Data shows that there is rapid growth in digital learning resources in India due to rise in usage of internet and smart phones over last one decade.
- Government of India has regularly taken lot of initiatives to inculcate the digital education at school level and higher education level.
- COVID-19 situation in Maharashtra has forced the educational establishments to go for digital mode of teaching learning.

- During COVID-19 pandemic, Government of India has taken initiatives such as *'Diksha', 'e-Pathshala', 'Atal Innovation Mission'* etc. to strengthen the teaching-learning process.
- AICTE launching a *'Prabha'* channel through DTH services with 33 channels on different educational sections.
- COVID-19 have created more opportunities than the challenges for Digital teaching - learning process. The respondents agreed upon that challenges can be arrested with suitable approach towards the conduct of digital learning mode.
- The data analysis indicates that traditional mode is more effective than the digital mode, when it is interpreted in view of effectiveness of the delivery.
- The data shows that prior to lockdown most of the educational establishment completed less than 50% of syllabus for the current semester.
- Most of the institutes adopted digital teaching – learning mode during the COVID-19 situation.
- Leaving aside the rural India, most of the urban area of Maharashtra is well equipped to conduct the digital mode of teaching – learning process. Although, it is also observed that the attendance to these sessions were poor.
- Zoom Cloud Meeting is the most popular platform used during the COVID-19 situation in Maharashtra.

- Respondent felt that the digital mode of learning is effective as standalone when it is not compared with traditional mode.
- Internet connectivity speed in rural areas is a challenge in conducting digital sessions with the students of Maharashtra.
- It is also observed that the content was customized according to the university requirements.
- Software and hardware compatibility is one of the hurdles in smooth conduct of digital mode of teaching – learning process.

In this research assignment, it is found that there are lot of challenges in conduct of digital mode of teaching – learning process. But at the same time it was found that these challenges can be converted into opportunities by adopting suitable training to the stakeholders. It is also observed that traditional method is more effective than digital mode when compared with each other.

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