

Analyzing Teaching - Learning Resources When Integrated by The Secondary School Teachers During The COVID-19 Pandemic

Ramesh Prasad Badoni

Lecturer Physics, Department of Physics,
G I C Misras Patti Dehradun, Uttarakhand, India.

Abstract:- Across the globe, the education platform for the primary to tertiary standard fractured during the lockdown time because of COVID-19. In India, there are variety of schools run by government, public and private system and almost majority of schools adopted NCERT curriculum. The recommendations of National Education Policy (NEP)2020 regarding online teaching learning (OTL) processes was implemented in different states of India but the need of the hour in pandemic period shortened the length of time for its integration in school education set up. In spite of difficult times, the education system is continuously upgrading digital infrastructure, optimum use of resources like blended mode of learning, online teaching, assessment, e-content creation development of virtual labs, augmented reality, e-governance and cyber safety are taken care of for quality education. This analysis is portrayal of OTL outcomes of teachers & students of secondary level during quarantine. Information communication and technology (ICT) accelerated and influenced the learning outcomes (LOs) of the learners in all respects of quality education and problem solving. The OTL has been used for the transaction of content by the teachers and simultaneously assessment of student work and upcoming scheduling.

The study finds that the best preferred digital resource platform for OTL is NCERT You Tube official channel (55.1%), DIKSHA (49.8%) and E-Pathshala (37.3%); type of digital content was mostly used in the form of text as pdf, worksheets and documents (81.7%), videos (77%), interactives (19.4%); applications and software used for communication YouTube (66.2%), Zoom 943.4%) and Google meet (47.6%); Devices used for content delivery mostly (91.8%) Smartphones, laptop/desktops (32.1%) and tablets were 7% and other devices; internet connectivity speed (61.1%) in average in different parts of the country; learner were on television and free disk channel were (43%) and on radio (6.4%) ; teachers accepted that assessment were challenging (44%) and content creation for teachers (42.7%) is difficult task and in the same way effective and preferred Social Media are WhatsApp 86% and Facebook 24.5%. Moreover, the interesting findings are rating of preference of OTL is 49% and 64.7% learner are looking for both online and offline mode in class room teaching processes.

Keywords: OTL, LOs, ICT Tools, Social Networks, Cyber Ethics and Security and KSA.

INTRODUCTION

Online Teaching Learning (OTL) made a revolution in Indian educational system during lockdown situation. Integration of emerging technology in class room teaching -learning processes has been adopted by government and public schools and minimized the constraints with effective leadership and dedication of the teachers. Now teachers and student are directly interacting and reviewing the assignments, and measuring the progress in real time. Web tools and its effective use is growing up in schools in multiple ways to establish LOs. Teachers and student sharpen their communication and software skills. Since the practice teachers in classroom are defined as “rich and delicate”, presupposed a balanced performance, creating climate of openness and using pedagogical experience to create supportive structure for learning which is possible with trust and sensitivity among the teachers and learners. [1] (DeLaat, M.; Lally, V.; Lipponen, L.; Simons, R.J. 2007, p. 280). Now the result is showing that, OTL is really imparted in collaboration, sharing using ICT tools and providing opportunities to enhance knowledge, skills and applications (KSA) of learners. Social networks and media achieved that credibility as a source of information where everyone has online or offline interactions that virtually take place and it's now an integral part of School and institutions to connect in groups of learners to make education convenient. [2] (Ramesh Prasad Badoni, 2020, International Journal of Engineering Research & Technology, ISSN: 2278-0181 IJERTV9IS020371, Vol. 9 Issue 02, February-2020).

Now the OTL is continuously advancing the education system worldwide and LOs issues need to be addressed so that the aim of the education can sustain for learners in future.

REVIEW OF LITERATURE

The entire education system switched to OTL processes during lockdown and existing digital resources were explored, shared, remixed and transformed as per the curriculum and nature of learner. The perception of teachers and students changed during OTL modes and established the relationship among the management system, parents and all other stake holders to ensure it as normal procedure to deliver course for the best of learners.[3] (Loknath Mishra, Tushar Gupta, Abha, 2020, Shree, International Journal of Educational Research Open, Vol 1, 100012, ISSN 2666-3740). School education and pedagogical shift from traditional method to OTL emerged as modern approach of face-to-face teaching - learning in virtual platform and seminars to webinars. Now De-schooling society seems relevant as the current scenario tries to keep our children away from the traditional formal education system and provide an opportunity to flourish on their curiosity. [4] (Illich, Google scholar, De-schooling society, Harper and Row, 1971, New York). The influence of social media and its need in class room teaching is continuously expanding to reinforce the digital resources for sharing and discussion in open platforms.[5] (Dr. K. Syamala Devi, E. Gouthami, V. Vijaya

Lakshmi & Professor, Role of Social Media 2019, in Teaching-Learning Process. 6. 96-103.). Social media networks are also offering innovative 21st century-based learning ICT tools and learner achieve cooperation in their studies because they made friends outside in Twitter, Google group, Facebook and in other platform to share the learning and discussion on the day-to-day assignments. [6] (Kirsi, Silius & Thumas, Miilumäki & Huhtamäki, Jukka & Teemo, Tebest & Joonas, Meriläinen & Pohjolainen, Seppo., Students' Motivations for Social Media Enhanced Studying and Learning. Knowledge Management & E-Learning). Since last many years it was seen that teachers always asking students to explore educational Open educational resources (OERs) for flexible, easily available individual subjective and affordable like Google search, Wikis repository and so many by the student in their project works [7] (Gabriela Grosseck, to use or not to use web 2.0 in higher education? Procedia - Social and Behavioral Sciences, Vol 1, Issue 1,2009, Pages 478-482, ISSN 1877-0428.). Recently OTL mode at an individual and organizational level to supplement the transition phase advocated that "resilience must be built into our educational systems" and also indicated three trends that would be seen in future transformations viz. increasing educational innovations, emboldened public-private educational partnership and digital divide gap.[8] (G. Tam, D. El-Azar, 3 ways the coronavirus pandemic could reshape education, World Economic Forum, Global Agenda, March 13, 2020). The apex body of school education, NCERT and UGC taken the recent scenario into action and proactive efforts as 30% of syllabus reduced, OTL in different modes like television, radio transmission, Moocs at Swayam platform and simultaneously promotion policy to the student who couldn't appeared partially or completely in their examinations.

BACKGROUND OF THE STUDY

The unknown fearsome devil of corona shifted the existing teaching methodology into OTL mode where majority of teachers, students, policy makers, administrators and management were not acquainted with integration of ICT tools in virtual mode for their classrooms. It has been anticipated that forthcoming time will lead to multiple challenges for quality education, hands on experience, laboratory work, engaged and interactive classrooms and peer group of learning.[9] (UGC, COVID-19, reporting committee on examination and academic calendar, April 2020). Nowadays the potential of OTL is continuously making difference in learning styles and transaction mode of content to the learners. So, in the view point of understanding teacher and student across the different states of India with respect to OTL processes; this study has been conducted. The tentative solution from the information gathered after the unlock phase post COVID-19 reflecting the equilibrium trend in online and offline class room teaching learning. It has been observed, there is need of the study of OTL for the teachers and students irrespective of their medium and educational board in Indian schools to find the present scenario of OTL.

METHODOLOGY

This is a study of OTL and learning outcomes of teachers and students of age group 14-19 who are studying in K-12 level to measure the impact of ICT during the lockdown in different parts of the world. In this study a Google form has been used online to get factual information about the individual teacher and student from different states and regions of India. The collected responses were 336 including teachers and students where 08 teachers also participated from outside of the India in survey through Emails and WhatsApp. Investigation and analysis of the characteristics, behaviors and opinion on OTL of the teachers and students from Indian Schools taken into the study. The collected responses are part of this study randomly where maximum of participants responded in each item of the questionnaire asked in the Google form to make inferences and conclusion appropriately about the teachers and students' point of view concerned to OTL.

ITEM RESPONSE ANALYSIS (IRA) AND FINDINGS

IRA-1 and 2: This part of the information is administered on teachers and student from India and other parts of the India. In 336 responders there are 185 teachers and 151 students participated in the survey. In these item- responses it has been observed that 55.1% of the teachers and 44.9% of the students were actively engaged in OTL during the pandemic time in India.

336 responses

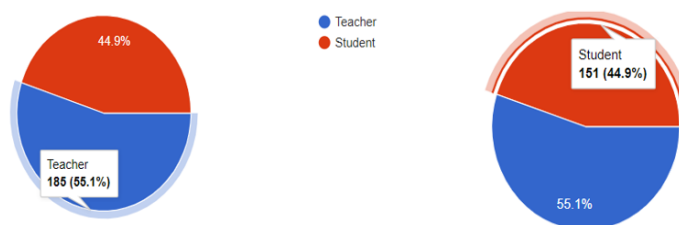


Fig-1.1 & 1.2

IRA-3: In this section of the study teachers and student has been asked to register name of their country and state from which they belong to, 97.6% of teachers and students are from different states of India and around 3% (8) teachers also shown their interest to be part of the study because these teachers are continuously engaged in OTL.

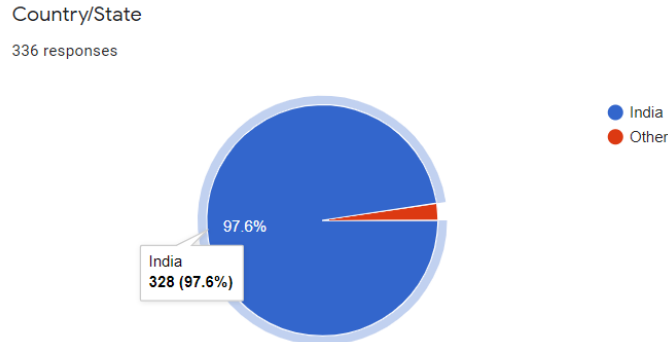


Fig-3

IRA-4: This part of the responses is inquired from the teachers of different subjects who were in OTL during COVID-19. The findings shown in Fig 4, are mostly the teachers teaching Mathematics (37.7%), English (34.9%), Physics (28.9%) and chemistry (27%) out of 215 teachers who engaged in OTL. Teachers of other subjects lies in the percentage scale below 20% that means these teachers are initially not prepared for this kind of platform and virtual mode of teaching learning processes. The teachers of Sciences, Mathematics and Languages seems much competent and involved in OTL than the teachers of humanities and commercial studies.

The Subjects mostly you are Teaching (for teachers)

215 responses

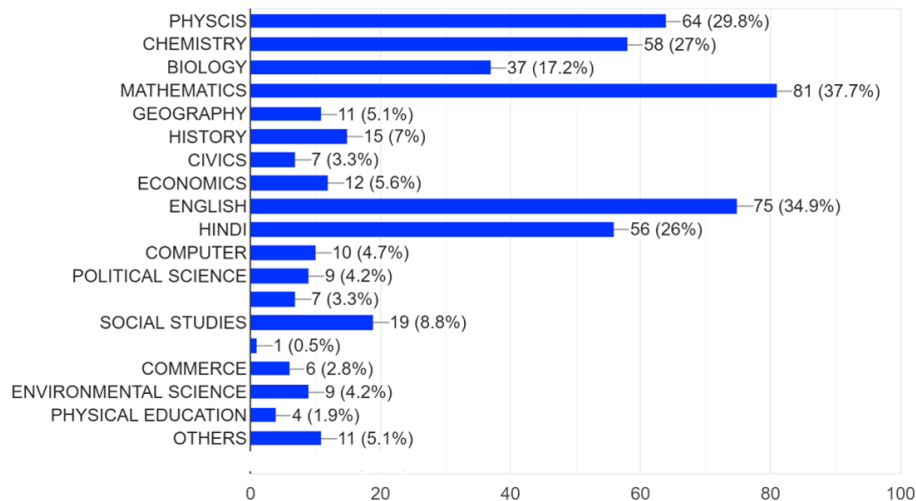


Fig-4

IRA-5: In this part of the responses the students of different stream and subjects who were in OTL during pandemic period were inquired. The observation from the pictorial graph Fig 5 shows that mostly students of Mathematics and English (50.5%), Physics (43.5%) and chemistry (40%) out of 200 were present in OTL. Students of other stream lie below 30% that means these students are definitely affected because of the teachers of humanities and commercial studies were partially involved in with this kind of virtual mode of teaching-learning processes. The teachers and students of Sciences, Mathematics and Languages actively participated in OTL.

The Subjects mostly you are Learning(for students)

200 responses

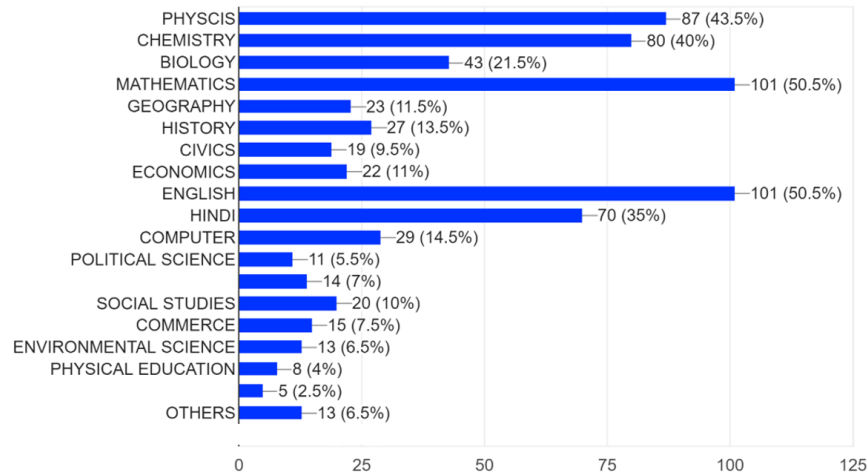


Fig-5

IRA-6: This part of the item response from the 268 teachers and students having devices and means of communication are with majority of Smartphones (91.8%) and desktops/laptops (32.1%) and rest of the average (7%) are using tablets and other devices for OTL processes as under shown in Fig-6. It is also evident that students are unable to manage the cost of the devices for the learning in virtual mode as the smaller number of students attempted this item in the survey out of the actual number of teachers and student involved in online mode of learning.

Devices/Machines used for online teaching and learning

268 responses

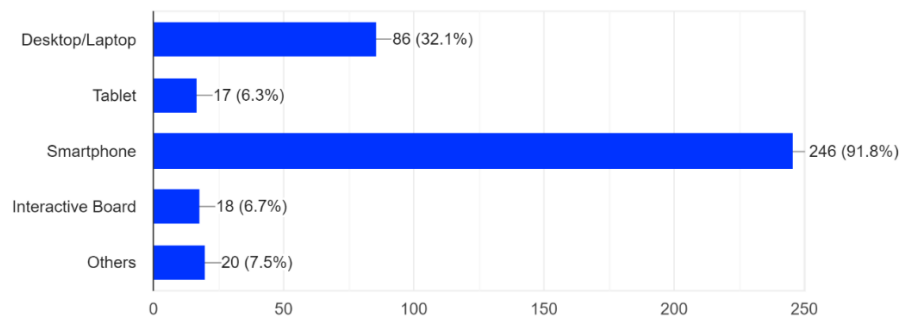


Fig-6

IRA-7: The educational resources are used by the students and teachers as available in open and free modes like open educational resources (OERs), proprietary educational resources and partially time bound resources as depicted in the Fig-6 shows that 55.9% of the student and teachers were using OERs and only 6% of them are using proprietary content during OTL in lockdown period. It's also observed from Fig 7 that 38.2% of users are also using e-resources having less trust in OERs and proprietary issues.

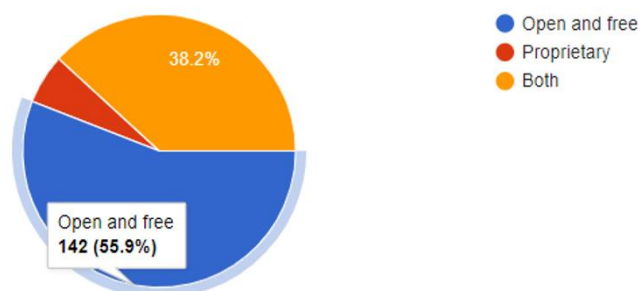


Fig-7

IRA-8: Since the system suddenly shifted to OTL from traditional mode of face-to-face teaching so everyone around the world was not ready for virtual mode of communication in class room teaching but there was no other means to deliver the digital content available. So, policy makers and educational leadership decided to choose and rely of the other mode of offline and recorded e-content via Television, Radio and other mode of transmission. The following Fig-8 represents that 43% of the learner and teachers were available in free dish channel or in television and 61.4% were getting the e - content delivery in other modes while 6.4% of the teachers and student were dependent on Radio as well.

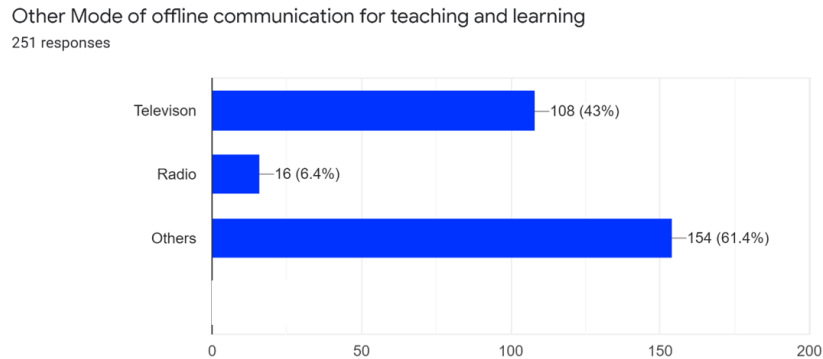


Fig-8

IRA-9: The Average Internet connectivity during teaching learning process at the learners and educators place of work was observed 23.8% of low-speed internet 61.1% of the internet connectivity were of medium speed but around 15% of the teachers and student were able to access the e-resources and OTL with high speed of internet. This is an alarming situation for educational system, when teaching and assessment were happening and internet connectivity was poor which led to multiple problems at both ends of educator and learner emotionally and academically.

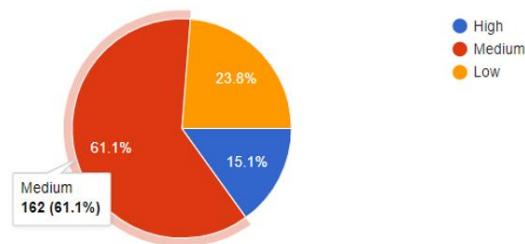


Fig-9

IRA-10: As of now there are enormous challenges in OTL because our educational system is getting improvement in different areas but during the COVID -19 period everyone was in dilemma and unable to justify this traditional mode of teaching but at the same time teachers and student were able to manage their constraints of OTL. The findings are reflected in Fig -10 shows that 44% of the teachers and students were facing problem to conduct assessment because of no such platform as established and do assessment of millions of students in one time using a reliable web based secure portal. There were issues of content and lesson creation for teachers as well because 42.7 % of the faculty members were unknown to this platform. Some of them created or enable to create the lesson but 37.5% of them faced problem in transaction or delivery of their content during OTL. 77 out of 248 teachers and students (around 31%) faced problem in managing their classroom like attendance, messaging or queries and unethical approaches during virtual classes.

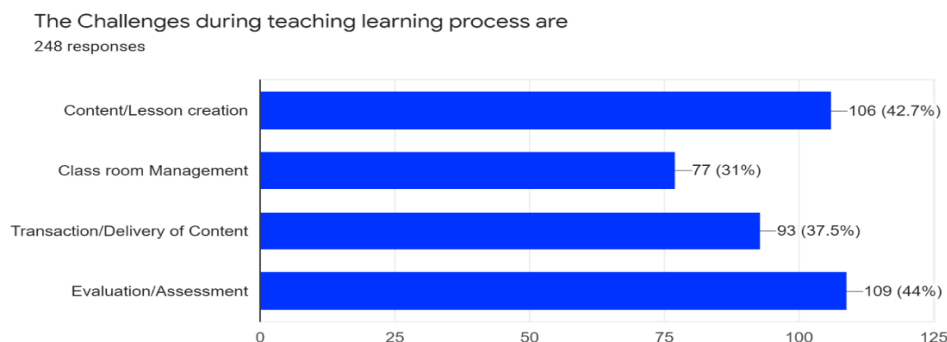


Fig-10

IRA-11: The Webpages, Apps and Software used by teachers and student have been listed out and it has been observed that during OTL process 66.2% teachers and student were exploring You tube videos, 46.6% were in Google meet, 43.4% are using Zoom, 30% are in Google form for evaluation purposes. Some interesting figure and graphics in Fig -11, shows that 22.1% were in DIKSHA platform, 20.3% are continuously using Google drive, 17.6% are in Google class room. 12.8% and below; teachers and student did exploration using E-Pathshala and rest of the web-based repository and application software like NROER, Kahoot, Mentimeter, Microsoft team, TEDx, Google slides ck-12, The teachers app, Class Dozo and many more.

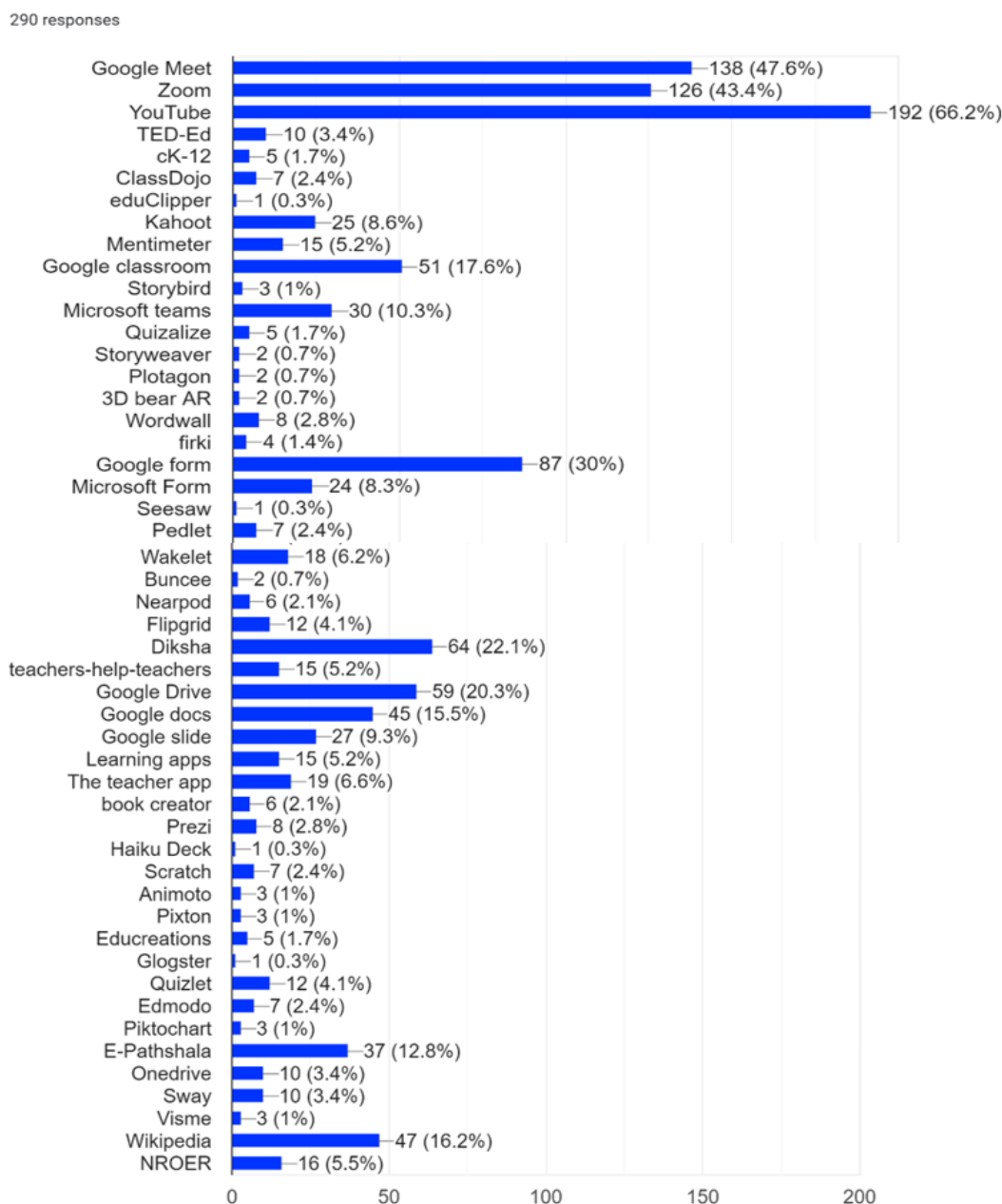


Fig-11

IRA-12: The potential of social media in knowledge integration are making difference in education. Now it helps to promote education in virtual mode and understand pedagogical practices in class room. There are 257 responses listed out from teachers and student altogether and the inferences are quite clear that during OTL 86% of WhatsApp and 24.5% of Facebook a major part of people concerned in education used for their regular duty hours. Moreover 64.2% were in YouTube, 19.8% users are of students and teachers in Google sites for sharing and collaboration and rest of the learners and educators were in the scale of 3 to 8% like at Instagram, twitter, LinkedIn,

257 responses

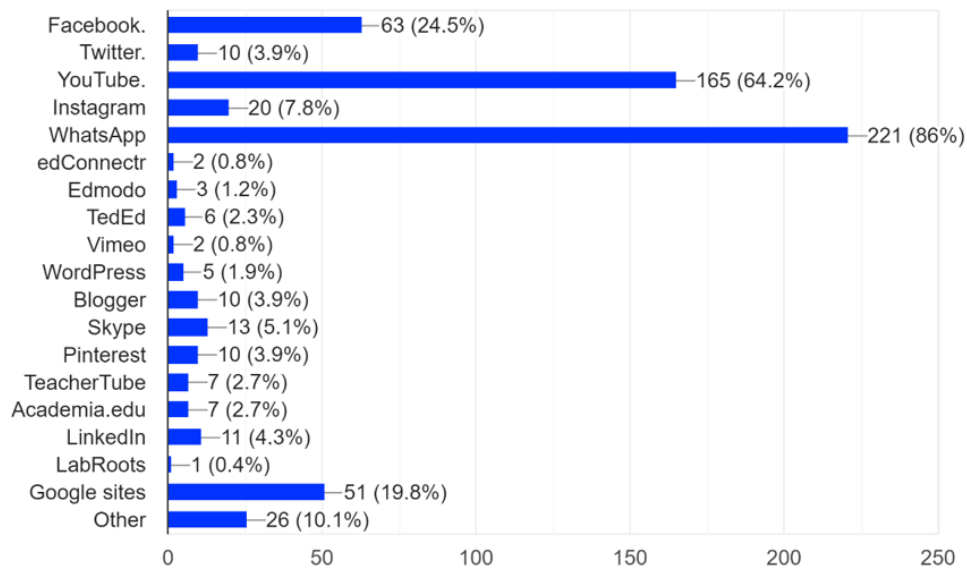


Fig-12

IRA-13: Evaluation and Assessment of teaching learning processes in OTL mode are very challenging because the system, established before COVID-19 were not enough to meet the future needs of 21st century skills but somehow mostly it has been partially or completely done by the teachers and student for their wellbeing in education system. The graphics as shown in Fig 12 states that Google form 78.1% widely used and Microsoft form 17.9% were used in class room assessment by the teachers. Rest of the platform are below 15% for the assessment and evaluation purposes.

196 responses

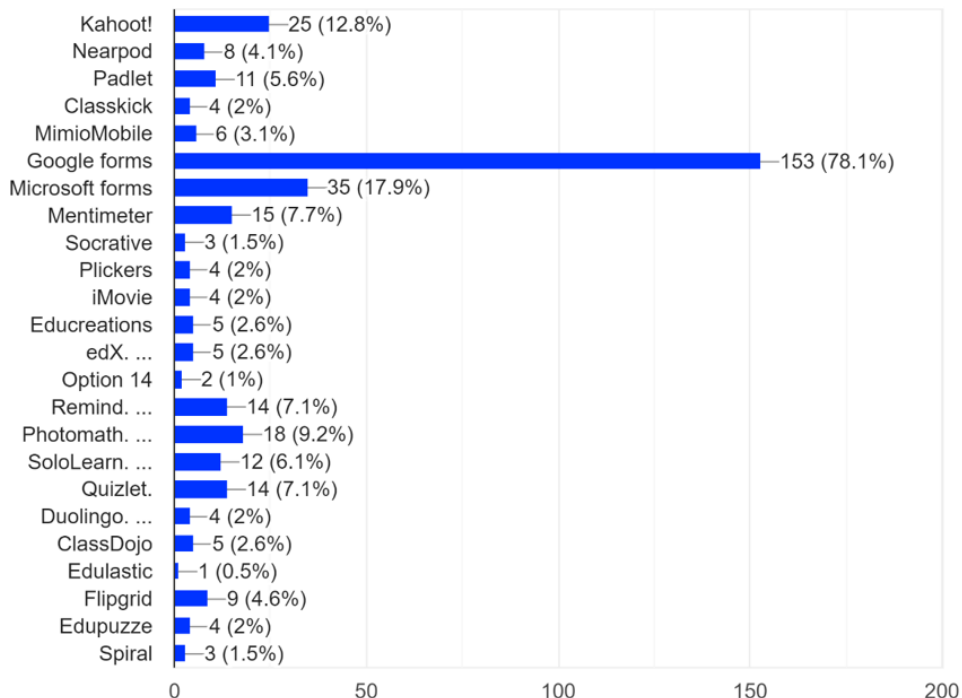


Fig-13

IRA-14: This item about the type of digital content and availability in different formats and platform was inquired so that it can be analyzed which resource is most effective, beneficial, ease to access and liked most by the users and learners in OTL. Fig -14 showing here in the chart that 81.7% are the learners of text documents (doc, pdf, worksheets, notes) what has been communicated and shared with each other during the virtual communication and 77% videos available based of syllabus and languages friendly shared. Notes and self-written notes used by 69.8%, 10-15% of the teachers and student also were involved in interactives,

simulation, animation, live video demonstration, annotation and graphics during OTL. Below 10%, the digital content available at Swayam, Khan Academy, Virtual and Augmented reality-based resources was accessed by the teachers and students. The inferences shows that most of the teachers and student were using smartphones and have medium speed of internet and low processors of the devices being used during OTL.

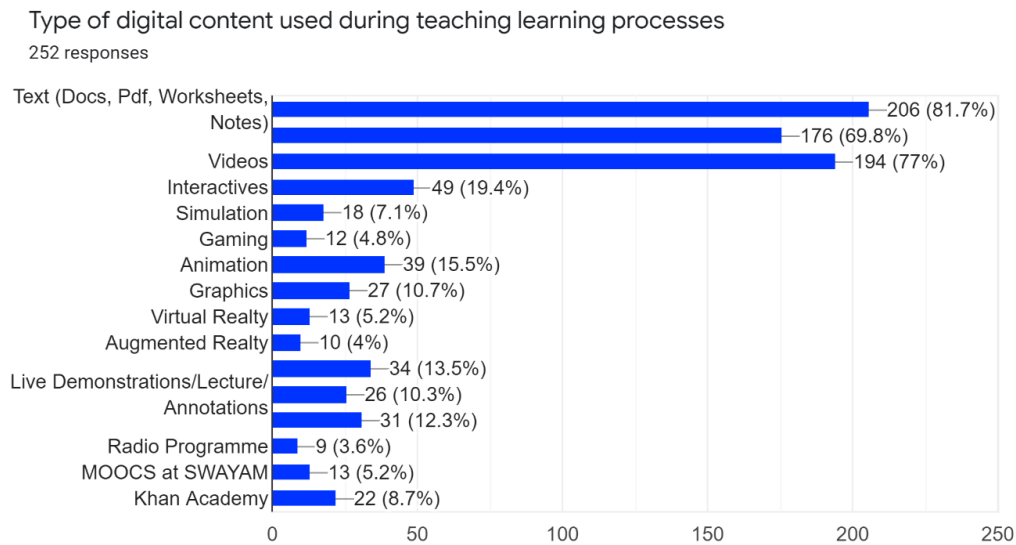


Fig -14

IRA-15: In this part of item response 225 both teachers and students downloaded, shared and effectively used the content as per their board and states in different parts of India during lockdown from You Tube official channel NCERT (55.1%), DIKSHA (49.8%), E-pathshala (37.3%), Text book with QR code from NCERT (32%). The content developed and facilitated easily available in the platform like Swayam, Kishore Manch, Audio books by NCERT and other OERs at government official websites and media in the optimum scale of percent (10%) shared during OTL as depicted in the Fig-15.

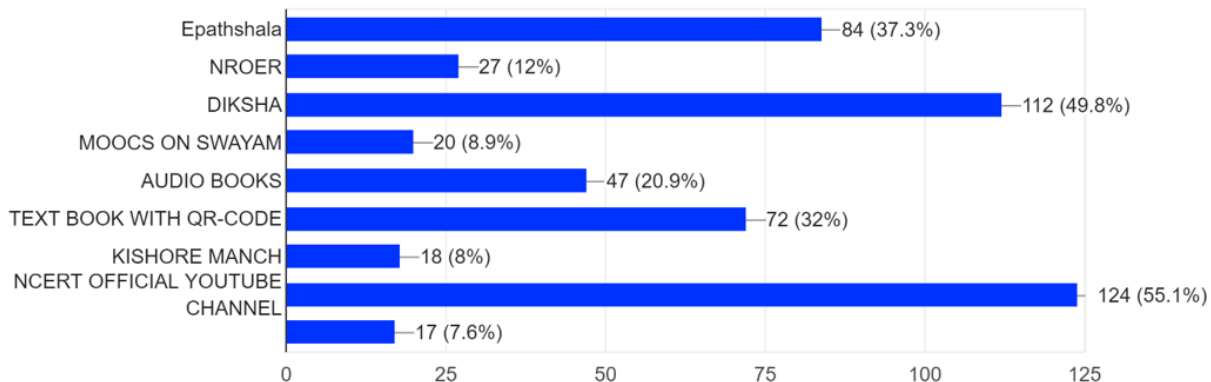


Fig -15

IRA-16: In this section, aim of study was to observe the performance of the students in different parameter both academic achievements and behavioral approaches in the rating scale as shown in Fig-16. This evaluation is an indicator of future learners in the form of adaptation of ethics, personal and social traits, learning styles and finally learning outcomes as per need of the educational system at global standard. If this section is critically observed then the reflection is quite clear that 55-60% (rating scale-3) learners are producing quality of work assigned to them, their comprehension, attitude and working habits during and after OTL and initiative to learn with zeal are appreciable. It is evident that 25-50% (rating scale-4) student and teachers are in high performer range in the respective traits of learning in OTL mode as graphically shown in Fig-16.

Performance Evaluation in different parameter during online teaching learning process (Scale: 4-excellent, 3-very good, 2-Average, 1- below Average)

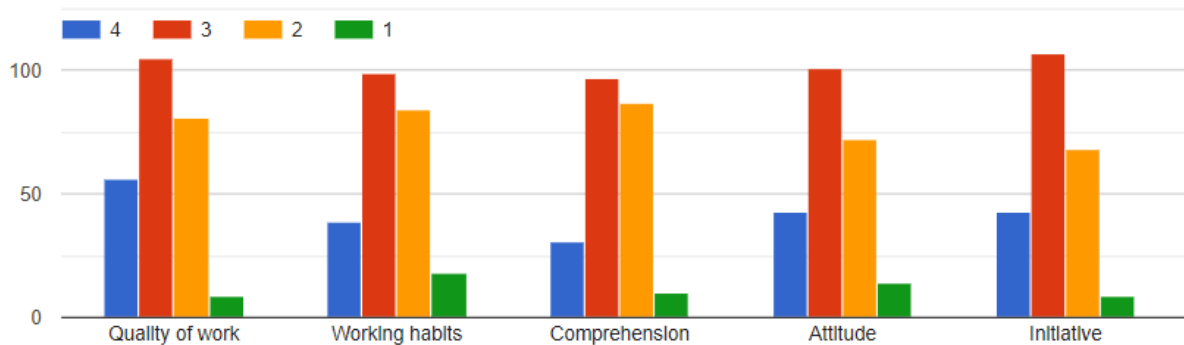


Fig-16

IRA-17: This parameter is used to investigate the future of the OTL and its tentative impact on teachers and student both. So, 263 teachers and student rated the OTL as plotted in the graph of Fig-17. In the study it has been observed that 49% of learners feels that OTL is good platform to achieve the LOs set in the curriculum. 36.9% says that OTL is an average platform and only 14.1% rate it as excellent platform to keep on OTL mode to achieve the LOs

How do you rate online teaching learning processes?

263 responses

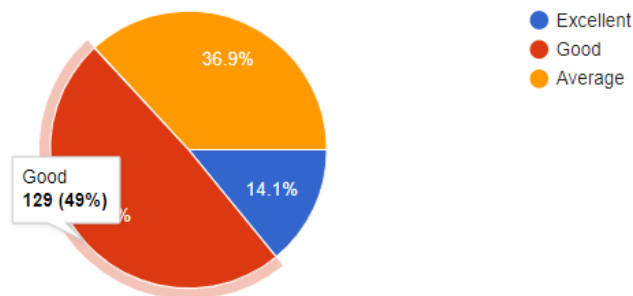


Fig-17

IRA-18: In this item of response, it has been asked from teachers and students will they recommend OTL in future. 64.7% learners partially agreed for OTL and 25.2% still believes that offline mode of teaching is acceptable but there are learners around 10% supports and recommending completely online teaching mode.

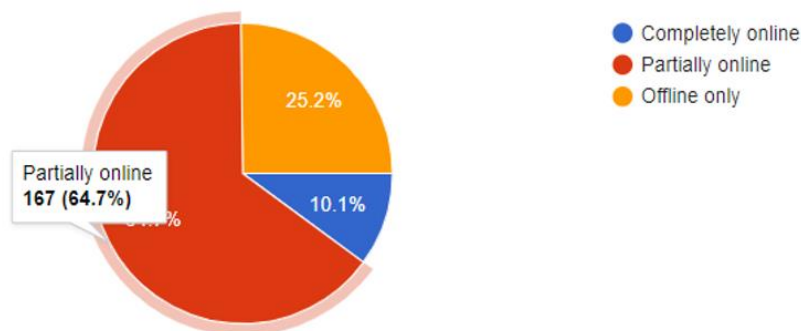


Fig-18

Conclusion: The study on the OTL during COVID-19 and lockdown and its findings are the reflections of concern for existing educational system. There are following major outcomes –

1. Teachers and students are able to integrate OTL in future and they adopted the concept and power of ICT in future education.
2. They do have the understanding of available OERs, platforms, web portal and mobile applications what can be used in OTL.
3. The APEX body NCERT-CIET and other initiative launched by the Indian government to smooth run of OTL using platform of DIKSHA, NCERT official You Tube channel, free dish television channel, Moocs at Swayam, E-pathshala and more provided optimum solution during lockdown.
4. Evaluation and assessment are still a challenge for mass number in real time situation for the learners.
5. High speed Internet and its reach is to be improved for OTL.
6. Digital resources and its development must be now as per demography of the country.
7. Since Training and Workshop shifted to webinars, it needs more of hands-on practices so that LOs can be achieved during OTL.
8. As learners are not compatible with OTL so they must be supported and enriched with applications of ICT tools.
9. Teachers and students need country's own social media networks, evaluation portal and OERs so that LOs can be achieved.
10. OTL and its effects for everyone including young minds need proper and safe guided approach in handling the digital resources if unwanted floating in educational platforms

The further scope of the study is to measure the competencies of the learners with the usage of OTL in their subject and the resources available. The components of OTL and social audit will indeed be a part of study in future because now hybrid learning, Machine learning and virtual learning are emerging as alternate mode of traditional teaching learning methods.

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