

Online learning solutions: Panacea for today and post COVID-19 lockdown time- A Review

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Abstract- Technological advancement is influencing every sphere of life. Economies, businesses, societies and politics are being transformed by the progress in technology. Educational sector is also the one to have got transformed. The advancement in education sector is witnessed in these days of lockdown when physical barriers between the teacher and the pupil are broken down through digitalized platforms. COVID-19 Lockdown across different nations of the globe has forced schools, colleges and universities to close. This has impacted majority of the world's student population and has made the world at large to acknowledge the significance of different digitalized platforms. Almost everywhere; educational institutions are encouraged and administered to use online modes of communication between learners and teachers. The aim of this review article is to bring together the educational applications, platforms and resources that tend to have a wide reach, a strong user-base and evidence of impact in order to help administrators of educational institutions, teachers and parents manage student learning as per their need and facilitate social care and interaction during periods of lockdown. Most of these facilities, being free of cost and may prove a good distance learning solution for today and in the post COVID-19 time. Many of these apps/platforms offer services in multiple languages.

Index Terms:- Advancement, Post COVID-19, Digitalized platforms, Lockdown, Physical Barriers

I. INTRODUCTION

Advancement in technology is transforming every aspect of life whether economies, businesses, or societies. Different areas such as artificial intelligence and machine learning, the internet of things, autonomous vehicles, drones, precision medicine and genomics, advanced materials, smart grids, robotics and big data are contributing to the advancement. Educational sector has also got transformation. New technologies are impacting upon how we teach, learn and collaborate (C. Brett, Educational

Perspectives on Digital Communications Technologies; 2009). The Emergence of new communication technologies, coupled with accessibility of internet and world wide webs have made them viable choices for both education learning and knowledge oriented applications. These technologies possess the capacity to generate active learning, collaboration, practical and effective learning.

The recent advances in information technology have been responsible for widespread adoption with distance education with varying degrees of success. Some programs are very successful in delivering quality education at a distance and others are not. Quality distance education needs appropriate mix of technology, contents, processes, faculty talents while some demand motivation on the part of the learner.

Now-a-days distance education occurs in a non-classroom setting where students participate in course discussions, exercises, and receive assessment from the instructors by utilizing technology such as video conferencing, audiographics, CD-ROM, and Web-based media. Furthermore, distance learning programs are becoming increasingly popular at academic institutions and corporations. Most importantly these programs are offering learning opportunities for people that are normally restricted by class time and space (YM Islam et-al; Mobile Telephone Technology as a Distance Learning Tool, 2005).

The advancement in education sector is witnessed these days even by a common man particularly when physical barriers between the teacher and the pupil are not leapable. The COVID-19 virus will change the face of education as we know it and instruction through online platforms will get a boost in India and around the world.

COVID-19 Lockdown across different nations of the globe has forced schools, colleges and universities to shut; thus placing unprecedented challenges on governments, institutions, teachers and parents. While countries are at different points in their COVID-19 infection rates, worldwide there are currently more than 1.2 billion children in 186 countries affected by school closures due to the pandemic. It has made the world at large to acknowledge the significance of different digitalized platforms. In just the past few weeks, we have seen learning consortiums and coalitions taking shape, with diverse stakeholders - including governments, publishers, education professionals, technology providers, and telecom network operators - coming together to utilize digital platforms as a temporary solution to the crisis. In emerging countries where education has predominantly been provided by the government, this could become a prevalent and consequential trend to future education.

In China, the Ministry of Education has assembled a group of diverse constituents to develop a new cloud-based, online learning and broadcasting platform as well as to upgrade a suite of education infrastructure, led by the Education Ministry and Ministry of Industry and Information Technology.

The educational applications, platforms and resources that can help administrators of educational institutions, teachers, parents or other stakeholders manage student learning as per their need and facilitate social care and interaction during periods of lockdown, are many. However those that tend to have a wide reach, a strong user-base and evidence of impact are considerable. Most of these considerable facilities are free of cost and many of these offer services in multiple languages. Here we follow the categorization based on distance learning needs of these educational applications, platforms and resources with very brief descriptions, as under:

1. Digital learning management systems:-

Digital "Learning Management System" (LMS) acts as a vast repository where one can store and track information. Anyone with a login and password can access these online resources whenever and wherever he/she wishes. The role of a Learning Management System varies depending on the organization's objectives, online training strategy, and desired outcomes. However, the most common use for LMS

software is to deploy and track online training initiatives. Learning Management Systems are beneficial for educational institutions and corporations alike. Virtually all LMS platforms feature built-in reporting and analytics, Improves Resource Allocation, Personalizes the Online Training Experience, Improves eLearning Accessibility. Different LMSs are:

- **ClassDojo:-** It is a system to Connect teachers, students and parents in order to build classroom communities
- **Google Classroom:-** Helps the classes to connect remotely, communicate and stay-organized.
- **Edraak:-**It provides an online education with resources for school learners and teachers. It is based on arabic language.
- **Nafham:-**It is another online learning platform in arabic language. It hosts educational video lessons that correspond with Egyptian and Syrian curricula.
- **Seesaw:-** It is meant for the creation of collaborative and sharable digital learning portfolios and learning resources.
- **CenturyTech:-** It is a highly useful personal learning pathway with micro-lessons to address gaps in knowledge. Good for challenged students and promotion of long-term memory retention.
- **Edmodo:-** The tools and resources offered in multiple languages to manage classrooms and engage students remotely,
- **EkStep:-** It is open learning platform with a collection of learning resources for supporting literacy and numeracy.
- **Moodle:-** It is a community-driven and globally-supported open learning platform.
- **PaperAirplanes-** It enables matches of individuals with personal tutors for 12-16 week sessions conducted via video conferencing platforms. It is available in English and Turkish languages.
- **Schoology:-** The tools are offered here to support instruction, learning, grading, collaboration and assessment..
- **Skooler:-** It facilitates tools to turn Microsoft Office software into an education platform.

2. Live-video communication Collaboration supporting platforms:-

Videotelephony comprises the technologies for the reception and transmission of audio-vedio signals by users at different locations, for

communication between people in real time. Videoconferencing provides students with the opportunity to learn by participating in two-way communication forums. Furthermore, teachers and lecturers worldwide can be brought to remote or otherwise isolated educational facilities. Students from diverse communities and backgrounds can come together to learn about one another through practices known as telecollaboration. Different such apps are as:-

- **WhatsApp:-** This is a very famous messaging and content sharing mobile application along with video and audio calls,.
- **Skype:-** It is used for video and audio calls with talk, chat and collaboration features.
- **Zoom:-** It is a cloud platform for video and audio conferencing, collaboration and chat. It is applicable for webinars as well.
- **Hangouts Meet:-** Provides video calls integrated with other Google's G-Suite tools.
- **Dingtalk:-** It is a communication platform supporting video conferencing, task and calendar management along with attendance tracking and instant messaging.
- **Lark:-** It gives the collaboration suite of interconnected tools for chat, calendar, creation and cloud storage, in Japanese, Korean, Italian and English
- **Teams:-** Here chat, meet, call and collaboration features are provided in integration with Microsoft Office software.
- **WeChatWork:-** It is a large platform for messaging, content sharing and video/audio-conferencing with the possibility of including max. 300 participants and is available in English and Chinese.

3. Platforms offering Massive Open Online Course (MOOC)

Massive open online courses are changing the world of education by providing free online courses for higher education, executive education and employee development. These courses are provided by well qualified lecturers from some of the most renowned institutes in the world. These courses provide virtual education to people from any corner of the world where there is accessibility to the internet. Massive open online courses are expected to complement the future of higher education in the world. Different such platforms are as:-

- **Alison :-** Facilitates online courses from experts in English, French, Spanish, Italian and Portuguese
- **ICourses :-** Provides chinese language courses for university students.
- **XuetangX :-** Online courses are provided by a collection of universities on different subjects in Chinese and English.
- **Udemy :-** Facilitates English, Spanish and Portuguese language courses on ICT skills and programming.
- **iCourse :-** Here Chinese and English language courses are available for university students.
- **Canvas Network :-** To support lifelong learning and professional development course catalogue are freely accessible for teachers here.
- **European Schoolnet Academy :-** Online professional development courses for teachers are available here in English, French, Italian and other European languages.
- **Coursera :-** Here online courses are taught by instructors from well-recognized universities and companies.
- **EdX :-** Leading educational institutions offer online courses through this platform.
- **Future Learn :-** To help learners study, build professional skills and connect with experts online courses are available here.
- **TED-Ed Earth School :-** Useful source of online lessons about nature and which are made available continuously during a 5-week period between Earth Day (April 22nd) and World Environment Day (June 5th).

4. Basic mobile phone Systems:-

Different mobile phone systems that can make teaching/learning easy through digitalized platforms are as:

- **Ustad Mobile:-** This system is useful for accessing and sharing educational content offline.
- **Funzi:-** Highly useful mobile learning service that supports teaching and training for large groups
- **KaiOS:-** It is basically a software giving smartphone capabilities to cheap mobile phones and helps open portals to learning opportunities.
- **Ubongo:-** In order to deliver localized learning to African families at low cost and scale, ubongo uses entertainment, mass media, and the

connectivity of mobile devices. It is available in Kiswahili and English.

- **Cell-Ed:-** It is a learner-centered system with skills-based learning platform. It has offline options also.
- **Eneza Education:-** It provides the service of revision and learning materials for basic feature phones..

5. Mobile reading applications:-

Different Mobile reading applications are as:

- **Reads :-** It offers digital stories with illustrations in multiple languages.
- **Room to Read :-** Facilitates resources to develop the literacy skills of children and youth. It has specialized content to support girls.
- **Global Digital Library:-** Provides easy access from mobile phones or computers to digital storybooks and other reading materials in 43 languages.
- **African Storybook:-** This application provides open access to picture storybooks in 189 African languages.
- **StoryWeaver :-** It is a digital repository of multilingual stories for children.
- **Biblioteca Digital del Instituto Latinoamericano de la Comunicación Educativa:-** It is to offers free access to Spanish language works and book collections for students and teaching staff in schools and universities
- **Interactive Learning Program :-** Mobile app in Arabic, created by the United Nations Relief and Works Agency to advance reading, writing and numeracy skills.
- **Worldreader :-** It has digital books and stories accessible from mobile devices and functionality to support reading instruction. It is available in 52 languages.

6. Digital learning content creating tools for teachers :-

Tools that can be used for the creation of digital content for delivery through digitalized platforms are as:

- **Squigl :-** It is a content creation platform which transforms speech or text into animated videos.
- **Thinglink :-** Provides tools to create interactive images, videos and other multimedia resources.
- **EdPuzzle :-** It is a video lesson creation software.

- **Buncee :-** It supports the creation and sharing visual representations of learning content, including media-rich lessons, reports, newsletters and presentations.

- **EduCaixa :-** Here courses are provided in Spanish language to help teachers develop the skills and competencies of learners in areas such as communication, entrepreneurship, STEM and big data.

- **Kaltura :-** Gives tools for video creation and management in integration with options for various learning management systems.

- **Trello :-** It is a visual collaboration tool that is used by teachers and professors for easier coursework planning, faculty collaboration, and classroom organization.

- **Nearpod :-** It is a software to create lessons with informative and interactive assessment activities.

- **Pear Deck :-** It has the facility to design the engaging instructional content with various integration features.

7. Strong offline functionality systems:-

- **Ustad Mobile :-** Offline sharing of and access to educational content is provided here.

- **Rumie :-** For lifelong learning for underserved communities Rumie provides education tools and content.

- **Kolibri :-** It is a learning application that supports universal education. It is available in more than 20 languages.

8. Self-directed learning content:-

- **YouTube :-** A very famous app and a huge repository of educational videos and learning channels.

- **Facebook Get Digital :-** Various resources like lesson plans, conversation starters, activities, videos and others are there for students to stay connected.

- **Khan Academy :-** It has free online lessons and practice in math, sciences and humanities, as well as free tools for parents and teachers to track student progress. It is available in more than 40 languages, and is aligned to national curriculum for over 10 countries.

- **Madrasa :-** It provides resources and online lessons for STEM subjects in Arabic.

- **ABRA :-** It has a selection of 33 game-like activities in English and in French to promote reading comprehension and writing skills of early readers.

- **British Council :-** It provides games, reading, writing and listening exercises for english language learning.
 - **Byju's :-** It is a learning application with large repositories of educational content designed for different grades and learning levels.
 - **Code It :-** It is to teach children basic programming concepts through online courses, live webinars and other kid-friendly material. It is available in English and German.
 - **Code.org :-** It offers for free by a non-profit, wide range of coding resources categorized by subject for K12 students.
 - **Code Week :-** To teach and learn computer coding it has a List of online resources in all EU languages.
 - **Discovery Education :-** It provides free educational resources and lessons about viruses and outbreaks for different grade levels.
 - **Duolingo :-** It is an application to support language learning. It supports numerous base and target languages.
 - **Edraak :-** For students, parents and teachers it has a variety of resources for K-12 education in Arabic.
 - **SDG Academy Library :-** On sustainable development and related topics this app supports a searchable library of more than 1,200 educational videos.
 - **Siyavula :-** It facilitates mathematics and physical sciences education aligned with South African curriculum.
 - **Smart History :-** It is an art history site with resources created by historians and academic contributors.
 - **Feed the Monster :-** To teach children the fundamentals of reading in multiple languages, this android application is useful and is available in 48 languages.
 - **History of Africa :-** It is a nine-part BBC documentary series on the history of Africa. It is based on UNESCO's General History of Africa book collection.
 - **Mindspark :-** It is an adaptive online tutoring system to help students practice and learn mathematics.
 - **Mosoteach :-** It is a chinese language application for hosting cloud classes.
 - **Geekie :-** It is a Portuguese language web-based platform to provide personalized educational content using adaptive learning technology.
 - **KitKit School :-** It is a tablet-based learning suite with a comprehensive curriculum spanning early childhood through early primary levels.
 - **LabXchange :-** To enable educational and research experiences curated and user-created digital learning content is delivered here on an online platform.
 - **Music Crab :-** It is a mobile application for music education.
 - **OneCourse :-** It is a child-centred application to deliver reading, writing and numeracy education.
 - **Polyup :-** Facilitates learning content to build math and gaining computational thinking skills for students in primary and early secondary school.
 - **Quizlet :-** To support learning in multiple subjects it has learning flashcards and games and is available in 15 languages.
- 9. Psychosocial support providing resources:-**
- UNICEF guidelines on how teachers can talk to children about COVID-19.
 - UNICEF guidelines on how parents and caregivers should talk with children about COVID-19.
 - InterAgency Standing Committee guidelines to protect and improve people's mental health and psychosocial well-being while in an emergency.
 - WHO mental health and psychosocial guidance during the COVID-19 outbreak.
- 10. External repositories of distance learning solutions:-**
- **Common Sense Education :-** It has tips and tools to support transitions to online and at-home learning during school closures.
 - **Koulu.me :-** To facilitate distance for pre-primary to upper secondary learners, here are apps and pedagogical solutions collected by Finnish edtech companies .
 - **Organisation internationale de la Francophonie :-** For learning and teaching French here are the resources for primary and secondary school students and teachers
 - **Commonwealth of Learning :-** Here is a list of resources for policymakers, school and college administrators, teachers, parents and learners to assist with student learning during the closure of educational institutions.
 - **Brookings :-** It is a catalogue of nearly 3,000 learning innovations. All of them are not distance learning solutions, rather many of them offer digital education content.

- **Education Nation :-** To support teachers and learners during the school closures, it has the learning solutions that Nordic countries have opened for the world for free.
- **EdSurge :-** Community-driven list of edtech products, including many distance learning resources for students, teachers and schools, covering primary to post-secondary education levels.
- **Keep Learning Going :-** Extensive collection free tools, strategies, tips and best practices for teaching online from a coalition of USA-based education organizations. Includes descriptions of over 600+ digital learning solutions.
- **UNEVOC Resources :-** For continued learning in the area of TVET there are tools, guides, MOOCS and other resources collected by UNESCO's International Centre for Technical and Vocational Education and Training.
- **UNHCR :-** It is an extensive list of over 600 distance learning solutions from the United Nations agency for refugees.
- **European Commission Resources :-** A collection of online platforms for teachers and educators, available in 23 EU languages.
- **Global Business Coalition for Education :-** Facilitates with a list of e-learning platforms, information sharing platform and communication platforms.

II. CONCLUSION

Technological advancement has affected all the fields of human life. COVID-19 Lockdown has made the technological advancement in education sector more conspicuous when online learning platforms and resources particularly those that tend to have a wide reach, a strong user-base and evidence of impact, became the commitment of everybody. Considering just past few weeks, it has been observed that learning consortiums and coalitions are taking shape, with diverse stakeholders - including governments, publishers, education professionals, technology providers, and telecom network operators - coming together to utilize digital platforms as a temporary solution to the crisis. So it was much needed step to enlist all such digitalized platforms together in order to help administrators of educational institutions, teachers, parents or other stakeholders, manage student learning as per their need and facilitate social

care and interaction during periods of lockdown and afterwards.

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