STATE OF ART DIGITAL LEARNING: PROPOSED FRAMEWORK, METHODS, BENIFITS, TOOLS, AND CHALLENGES

SUNEET WALIA[1], RANJIT RAJAK[2], SATISH CHOURASIYA[3], OM PRAKASH KAIWARTYA[2]

[1]Department of Business Management,Dr.HarisinghGour Central University(M.P.), Sagar,India

[2,3]Department of Computer Science and Applications, Dr.HarisinghGour Central University(M.P.), Sagar, India

[4]School of Science and Technology, Nottingham Trent University, UK

E-mail: [1]suneetfmsdhgu@gmail.com , [2]ranjit.jnu@gmail.com, ,[3]satishchaurasiya5@gmail.com, [4]omprakash.kaiwartya@ntu.ac.uk

Corresponding Author: Ranjit Rajak

ABSTRACT

Covid-19 has enabled a paradigm shift in the teaching-learning process. It has instilled the need for a platform that does not bound any learner to a particular campus or four walls of a classroom. Education for the 21st century endures encouraging discoveries in the area of digital teaching-learning. Moreover learning in present times has engendered different platforms for students and teachers. The most prominent one in the present era is the virtual platform for interaction and learning. But digital learning platform is marked by problems of massive expenditure on computer resources such as servers, network devices, etc. which further require maintenance and technical manpower for breakdown resolution. This is made easier through a cloud computing environment. This paper endeavors to explore the various digital learning methods, potential benefits, and core challenges of digital learning. Further, an endeavor is made to propose of framework describing the usages and key benefits of cloud computing for teaching-learning purposes

Keywords: *Digital Learning, Digital Environment, Tools, LMS, MOOC, Cloud Computing)*

1. INTRODUCTION

This Learning has always been construed towards the exchange of knowledge and critically applying the knowledge for self and societal development. The present era has enabled a paradigm shift in the process of learning. The conventional methods of teaching-learning with chalk and duster within four walls of the classroom were prevalent. The covid-19 lockdown ushered in the virtual platform for teaching-learning. The pertinent question surfaced as to which process is better?

Digitalization of work systems began with the invention of home computers [1] but, it was Claude Shannon, the mathematician, who laid the "foundations is digitization" in his piece "A Mathematical Theory of Communication" in 1948 [1]. In generic terms digitization is defined as "a process of converting data oftentimes tangible into a digital format that can be read via computer screen or a smartphone. Information is organized into units called bits that can be separately addressed in groups called bytes" [1]. In present times organizations are viewed as corporate, big or small which are endeavoring to operate and transact

through "digital transformation"[2]. From maintenance of health to shopping beyond regional boundaries and even the education fraternity all have adopted the digital platform. The fast advancement in technology has made education simpler which can be aided by digital, open, web-based, computer-aided, blended, and mobile learning, via the internet.

- The world is transcending towards e-learning and advance techniques are playing a vital role. The ICT and the Open Educational Resources(OER) are looked upon for sharing information and knowledge. It has now become imperative for every teacher to be well familiar with the ICT and OER's to utilize the process to reach the maximum learners. Teachers require appropriate training for the optimum use of technology and to motivate learners to choose the digital platform for their learning.

- Academic fraternity, be it schools or higher education institutes, (government or private), are all acquiring the tools and equipment for imparting lessons and even providing qualification certificates to its students through

the digital platforms. "Digital learning can be defined as web-based learning which effectively makes use of the information technology to impart knowledge to the students". In other words, we can say that it is through the broad range of technology and using methods such as blended learning, flipped learning [3], and opening access to varied books in soft copies. Digital learning is giving wider and larger exposure to learning processes. Moreover, digital learning is not limited to the usage of mere digital tools including Big Data[4] it seeks to ameliorate learning (Lauren, 2020). Digital learning is easily reachable to rural and remote regions which are considered to be a comparatively economical education in terms of minimum transportation, accommodation, and the institute overhead. Further, flexibility is an additional interesting characteristic of digital learning. It has been identified by the government that the increasing prominence of digital learning in today's world

- This paper further discusses the learning paradigm the background of digital learning and its classification and discusses the importance of digital learning and digital earning environment, presents the Pedagogical approaches to digital learning, and Section fifth presents a Comparison of Digital Learning and Traditional Learning; Section sixth summarized Digital Learning Methodologies, Tools and Platforms; section seventh describes the role of cloud computing in digital learning and benefits; section eighth pointed out Issues and challenges of digital learning and finally section ninth followed by a summary of the study and conclusion giving the scope of future discussion.

The aim and objectives of the study are

- To study the digital platform for the teaching-learning process.

- To study the challenges of the virtual platform for teaching-learning.

- To understand the key benefits of cloud technology for teaching-learning.

2. BACKGROUND OF DIGITAL LEARNING AND ITS CLASSIFICATION

In generic terms, learning can be classified as influenced by intrinsic and extrinsic motivators. "Learning motivation is a learner's individual

opinions about affairs, and learners would present different knowledge acquisition needs because of distinct opinions"[5] Though technology has an influencing role in the learning process, it does not "transform learning and literacy by itself, but only in conjunction with other socio-economic factors" . There has been a paradigm shift from 'physical to virtual platforms'[6], be it the marketplace, and now the teachers and students. Thus the knowledge is created which is accessible virtually by the learners with e-learning interactive sessions and learning is open to all age groups. However, the position of a teacher changes from a "dispenser of information to facilitator of learning", as now he facilitates and mentors discussion and solves problems. Researchers have found digital learning to be a "win-win" situation for both the learners/students and the teachers/institution. Students regard the digital learning platforms as convenient, flexible and the institutes are witnessing a good number of enrollments in various courses. Moreover "teaching-learning has become a smoother experience as it includes animations, gamification, and audio-visual effects" [7]. With the advent of digital learning types of devices like smartphones, iPad, laptops, etc., students feel excited to use and learn through such gadgets.

As suggested by Lai et al.[8], digital learning was initially set forth by Jay Cross in 1999. In respect to the other teaching methodologies even digital learning has been modifying and has been upgraded to different platforms. Initially, it started with the exchange of texts and pictures via the Internet and now it is mobile or laptops and different applications are being developed and used to study and learn. Keane[9] has segregated digital learning into four different parts as shown in figure1
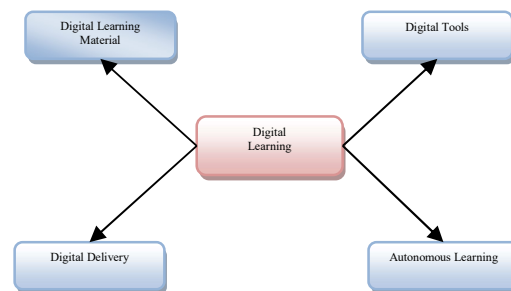

Figure 1: Digital Learning Classification

Table 1: Details of Classification of Digital Learning

Types	Brief Details
Autonomous Learning	It is a process of independent learning which makes its mechanism for learning activity. This classification is also known as self-learning activity. It has own right for activity and control over the learning. It can be either online or offline activity for learning via digital learning. It is further classified [a]into three types such as general learning, high order thinking learning, and ability learning.
Digital Delivery	It is concerned with the delivery of lectures/ classes using the Internet and it can usages various modes such as YouTube, Google meet, Facebook lives, etc. The delivery lectures are supported for both Internet and Intranet technology. Even it can be delivered using satellite broadcasting.
Digital Learning Material	It is also recognized as e-learning material. It is defined as the learning materials are in digital format which can be accessed via the Internet or Intranet. There are various examples of e-learning materials such as e-books(both text and reference books), e-exercise/tasks,e-workbooks, education through videos, etc.
Digital Tools	This is called a new era of learning using technologies for both school educations and higher educations. There are various tools for communication between trainers and learners. Some examples of tools such as laptops, smartphones, LMS, etc.

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3. IMPORTANCE OF DIGITAL LEARNING AND DIGITAL LEARNING ENVIRONMENT

From the institutes and students point of view(Gond et al., 2017)the advantages acknowledged for digital learning are as follows in figure 2:
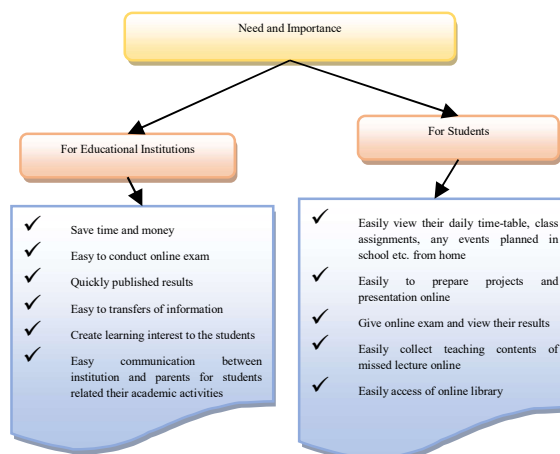

Figure 2: Need and Importance of Digital Learning

Technology is considered a pillar of the digital learning environment. Students are now being encouraged to possess computers and refer to online platforms such as NPTEL, Byju's, Jr.Hat, MOOC, etc., and other open educational resources. Sousa et al.[10], stated in their research that the availability of more open educational platforms enhances the digital learning experience of the learners.

"Concerning student motivation when using open education platforms, the results showed a significant change in student's perception of learning and motivation when using open education platforms as compared to the traditional learning process. Results also showed a significant change in students' academic motivation when incorporating open education platforms among the learning process".

One major advantage seen with digital learning is that students can connect with their instructors as well as other students via smartphones, tabs, etc. sending and receiving digital messages.

It is pointed out by S Bocconi et al.[11] and Camilleri et al.[12], that it is the teacher upon whom depends the extent usage of online resources by the students. However, the student's motivation to access and process learning through digital mode majorly depends upon the "accessibility of new assets in school settings[13]. It is also indicated that teachers who make use of the internet and other social media platforms responsibly can generate high frequency in digital learning by the students. acquisition of what

already is incorporated in books and the heads of elders"; and this he says is the foundation of imparting and transmitting knowledge and that students are evaluated based on their reproduction of the taught knowledge. Digital learning perhaps is bringing change as to this teaching-learning process with the availability of information and materials stored for a longer period which can be accessed from any geographical location.

Jacqueline et al[18].,As stated in their research 'a modern learning theory, this describes the Ubiquity of learning through the internet. Further, they explain the "online Collaborative Learning (OCL), which renders a model of learning in which students are encouraged and supported to work together toward knowledge".

Hybrid or online learning as compared to traditional learning is now creating space for 'lecturing a facelift' with discussion posting and close reading(Washington University, 2020).

4. COMPARISON OF DIGITAL LEARNING AND TRADITIONAL LEARNING

Traditional learning is distinguished from present digital learning in varied aspects. McKiernan[19], and Lin et al.[5] have suggested three criteria for differentiating between traditional and digital learning such as practice methodologies, contents of materials, and the channels of learning. From the use of chalk and board to giving assignments and checking home-works to giving punishments were all practices. On the other hand, digital learning takes one out of the boundaries of classrooms and textbooks. It gives you access to all types of study material in the world library and also allows you to read the different contexts and opinions of other people on a given subject. A big advantage of digital learning mode is that it can store data for a long time and people can access it as per their time of convenience and above all, it reduces the teacher's cost. The only drawback with digital learning is that it is more of a self-learning process. Nalini et al.[20], stated in their research on medical undergraduate students highlighted that online learning had limitations as "Multiple drug information was available so it was difficult to choose the best one; complete explanation of why treatment regimen is given is not available online;

Choosing the suitable dosage forms was difficult".There are some other major drawbacks of digital suggested by Rahmawati[21], which

decrease direct, as well as oral communication, cost, adequate technological skills, good internet access or connectivity, did not allow real or direct feedback through teachers increased chance of plagiarism and cheating.

Pilot research (Zogas et al.[22]) found that between the e-learners and the traditional learners, the students showed similar marks, while the research study by Nalini et al.[20], stated that a significant improvement in the students is observed who adjusted the digital learning methodology versus the traditional methodology.

An essential perspective of digital Vs conventional learning is that digital learning provides no control on time and space for learning or joining a particular course. It further provides a free selection of courses with no age bars. However digital learning is more of a self-learning process. On the other hand in traditional learning one has to attend institute and classroom lectures in specific times and spaces, where students are required to adhere to a structured curriculum. The presence of teachers provides immediate clarity of problems with personal attention to each student and close reading(Washington University, 2020).

5. DIGITAL LEARNING METHODS, TOOLS, AND PLATFORMS

The major purpose of education is to increases the quality and skilled education using the recent technologies for the students at the college or university level. So, after the completion of their education, the learners would get jobs in the market. There are some methods and strategies for digital learning which are shown in figure3
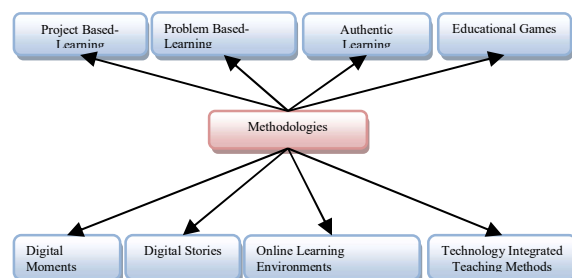

Figure 3: Some Methodologies of Digital Learning

The details of the digital learning methods are as follows:

- *Project Based-Learning:* It is one of the digital learning methodologies in which the learner gets the real-life project and explores the challenges of the project. The major objective of project-based learning is to improve the skill of knowledge in the different dimensions of the project in the recent technology era. There are some benefits of project-based learning which are: to learn real-world projects, to learn teamwork, to develop problem-solving skills, and to increase the interest in education.

- *Problem Based Learning:* It is one method of learning which includes a group of learners solve a particular problem by learning a subject and discussion. This method is also known as learner-center pedagogy. The best example of problem-based learning is team study and solve high thinking order problems.

- *Authentic Learning:* By using this method, a learner explores the real-life problem and solves it. This learning method is also known as multi-disciplinary learning. Examples of authentic learning are analysis of research data; project-based learning, simulation of data, etc.

- *Educational Games:* It is also one method of digital learning designed in form of games. This method helps to explore the particular subject, improve the concepts and try to understand the past event. All this learning using in form of video games. It gives mental peace and fast-tracking of knowledge.

- *Digital Moments:* This method is used to keep various resources and learners bonded with each other thereby creating a relationship where the learner feels a sense of trust and belonging to this platform.

- *Digital Stories:* It is a very efficient method for the students where students learn as per their interested topic. Multimedia tools include video, audio; images, and animation are heavily used to explore the knowledge. Two major objectives such as motivation and creating a learning environment.

- *Online Learning Environments:* It is also known as a virtual learning environment and a web-based learning environment. There are various online learning environments such as synchronous learning, asynchronous learning, fixed learning, etc. best examples of online learning are distance learning and professional certification learning.

Due to the rapid advancement of technologies, the mode of learning is switching from classroom learning to digital learning and it provides a good platform for learning between the learners and experts.

Here discussed various tools and platforms [23][24] for digital learning in the current era of technologies and it is revealed in figure 4 and details in table 2.
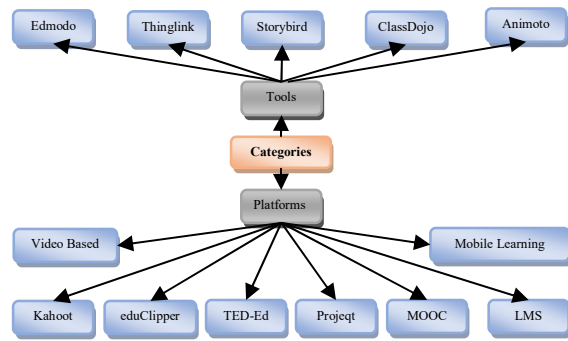

Figure 4: Tools And Platform For Digital Learning

Table 2: Details Of Tools And Platforms In Digital Learning

	Name	Brief Description
Tools	Edmodo	It is one tool for digital learning technology. It provides three fundamental services between experts and learners such as coaching, communication, and collaboration. It is an export-oriented tool that allows the distribution e- study materials to the learners to take a quiz, give assignments, etc. It can also measure the performance of the learners from time to time. The parents can allow communicating with experts to know the performance of their child performance There is no time-bound between the experts and learners.
	Thinglink	It provides a good environment to create both audio and video learning materials for teaching. It is very easy to access and uses. It uses a cloud platform. It is available in multiples languages for

		learning. It provides a virtual environment for learning. It has more security and authenticates the learners while using this tool.
	Storybird	It is a creative digital learning tool that is used to create innovative stories for both reading and writing skills among the learners. The experts are used various modes to creating the story for teaching such as blogs, emails, printed materials, etc. It is sometimes called an artful tool for digital learners.
	ClassDojo	It is one of the tools used for remote learning. It is used to identify the behavior of the learners by fast feedback processes such as reward points or grades during the learning period. It provides the environment for instant interaction with parents and students. It is used in primary education mostly.
	Animoto	It is based on the cloud platform. It is used to create educational audio videos with high quality in a short duration time. It is user-friendly and can access by mobile device from anywhere.
Platforms	Massive Open Online Course (MOOC)	It is an online course for learning platform for learners. There are two major components need for this course that is personal computer or laptop and Internet connection. A very large number of learners can be a participant in this platform from anywhere and anytime. It is composed of video lectures, e-study materials, and assignment sets. It is a good platform for discussion among the experts and learners.
	Learning Management System(LMS)	It is application software and provides an environment for learning digitally. It is the modern era of a learning platform. It provides the following facilities as uploading course materials, assignments, quiz and tracking the learners' activities related to the course. Provide the facilities for tracking learner attendance. Updating course e-materials. Provides feedback facilities for both learner and expert. No limit for access to study e-materials from anywhere and anytime. It helps to increases the knowledge skills.
	Projeqt	This platform provides the facility to create presentations online The presentation is dynamic type. This platform is also known as dynamic learning of project It optimizes the presentation in various parameters such as view, modifies, and edit. It supports almost all the latest browser and devices as mobile, laptop or desktop.

TED-Ed	It is a very good platform for discussing ideas between the learners and experts. It is an international platform for digital learning. It facilitates to the expert makes innovative presentations using multimedia for making the presentation interesting and attractive.
eduClipper	There are three types of learning based on the eduClipper platforms such as teaching, project, and game. It is one of the platforms for collaborative learning among learners. It provides a virtual classroom environment. It facilitated keeping the record in digital format. It is sometimes called a virtual learning platform. Provides the facilities for sharing of clips for learning among the learners. It is easy and user friendly platform for learner where they can make own learning clip using the experience during learning.
Kahoot	The process of learning using games, questionnaires, surveys through desktops, mobile phones, etc. It is a real-time learning platform. Helps to analyze the performance of the learners through various modes as quizzes, games, etc. It is a fast and easy learning process for learners.
Video-Based	It is the fastest-growing learning platform for learners. It helps learners for active participation in learning and is also known microlearning phase. The best examples of video-based learning are Youtube and Social blogging. It decreases the cost of learning for the learners.
Mobile Learning Apps	The best example of this platform is Google Classroom. It is a very cost-effective learning platform. It provides unlimited access by the learners. i.e. not fixed for access to the learning information. It is changing the education system in the modern time of technology. It provides all the components such as uploading, downloading, feedback, attendance, and tracking the learners activities.

6. DIGITAL LEARNING WITH CLOUD COMPUTING PLATFORM: FRAMEWORK AND KEY BENEFITS

Digital learning phenomena is broadly used in both training and teaching purposes Naik

Pavankumar et.al[24] suggested different ways for digital learning which are as follows: Computer Based Training(CBT), Internet Based Training(IBT), and web-Based Training (WBT).
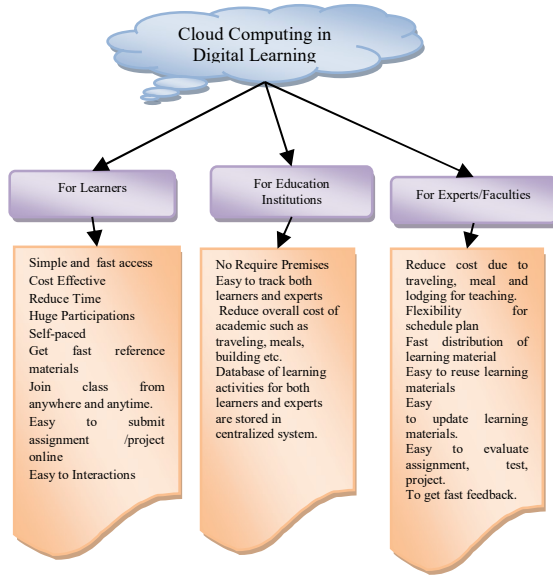

Figure 5: Benefits of Cloud Computing in Digital Learning

Information Communication and Technology (ICT) have played a very crucial role in digital learning which required both hardware and software resources for learner's devices such as smartphones, laptops, personal computers, host, licensing the software, server, network devices, etc. and it also requires maintenance and technical manpower for resolve any breakdowns. But these resources are not always feasible for institutes or universities due to costly. So, cloud technology replaced it and provide a cost effective platform for learning and it is the best option for digital learning in educational institutions.

Cloud computing in digital learning facilities and environments where the learner has their smartphone, laptop, personal computer, or smart devices for learning online. The key benefits of cloud computing [25] in digital learning are the learner can accesses the information on cloud platform from anywhere, anytime and even interaction among the learners is also easy.

There is no bound for learning and no requires any advanced facility for learning. There are the following enormous benefits of cloud computing platform in digital learning for education institutions, learners, and experts which is shown in figure 5.

The proposed framework of digital learning using a cloud computing platform is shown in figure 6. The framework consists of four components which are as follows:

Digital Learners: This component is the actual user of the digital learners which can be n number of digital learners. They can be education institutions students for course learning or working professionals for advanced learning. They connect to the expert via cloud platform for digital learning.

Internet Connectivity: This component is played a vital role for both digital learners and experts/faculties. Because it is the intermediate between digital learners or experts and digital learning cloud platform. Without this component, it is not possible digital learning and it should be fast for learning. Internet connectivity must be ported in both such as learner side and expert side

Digital Learning Cloud Platform: This component is composed of various information of digital learners such as learner login information, assignment upload information, project information, attendance information, submit feedback information, submit quiz information, learner result score information, etc. Similarly, for trainers or experts, it includes expert information, schedule plan information, feedback information, class information, duration of class information, etc. This platform can provide various activities such as virtual FDP, virtual conferences, virtual workshops, webinars, and learner e-materials.
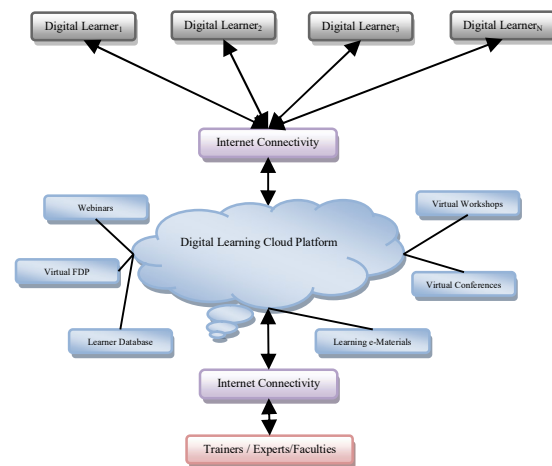

Figure 6: Proposed Model for Digital Learning

Trainers/Experts/ Faculties:

This component can be trainers or experts from the industries side and can be faculties from education institutions for their subject experts.

These also connect with digital learners using a cloud platform.

Digital learning has potential benefits [26] [27] for learners and experts which are as follows in table 3.

Table 3: Benefits of Digital Learning

Benefits	Brief Descriptions
No premises require	No requires physical building for education institutions. Experts can give a lecture from their homes.
Cost-Effectiveness	It reduces the cost of construction of building for the classroom which has limited seats. It reduces the cost of lodging, traveling, and food experts.
Huge Participation of learner	No bound for learner participation in digital learning They can be from worldwide.
Fast access of study materials	Learners can access e-materials from their location It is easy and less time consumption It is available 24x7 facility It is costless
Easy the distribution of study materials	From an experts point of view, he/she easily distribute the study materials in the forms of e-books, web links, video lectures, and e-notes Less time consumption on the experts' side. Cost-effective From any location, it can be sent using their smartphone or laptop.
Contained login history	Digital learning platform maintained database for both learners and experts. It contains the information of each learner's login history which reveals that learner activeness in learning. Similarly, it contains the login information of experts and identify the experts are login as per the schedule plan or not.
Easy to track learners or experts	By using this platform, it is very easy to track the learner's activities such as uploading assignments or projects, attending classes, giving a quiz, submitting feedback, or not. It is easy to track the expert's activities such as giving study materials, taking classes according to schedule plan, taking the quiz in a timely, processing results and scores.
Flexibility in the learning zone	Anytime for digital learning Anywhere for digital learning Any location for digital learning No constraint for learning.
Facilitated learner activities	It provides facilities to the learners for uploading assignment files, projects, submitting feedback, and study e-materials.
Easy to interaction	It is a good platform for discussion or interaction among the learners. It also provides a way to interact between the learners and experts.
Facilitated experts activities	It provides facilities to the experts for uploading study e-materials, updating study e-materials.
	Reuse the study e-materials To track the learners' active participation in class sessions.

The application of different cloud services in digital learning affords many opportunities and benefits which can be added in different aspects such as Infrastructure as a Service(IaaS) as digital learning, Platform as a Service(PaaS) as digital learning, Software as a Service(SaaS) as digital learning by using these services the stakeholders only pay for usage of resources. Therefore, the lesser maintenance cost, a lower hardware necessity, and economical software and infrastructure. Costs with scalable property to scale up services as per user's demand. Further, centralized and unrestricted data storage with a nearly unlimited storage capability. Moreover, the cloud platform epitomizes a single entry point to each stockholder, the security modifications can be simply tested and fulfilled. The application solutions of this in digital learning which is capable to program the essential resources for demanded contents and applications before they are needed which enhances the availability, reliability, performance, scalability, and robustness of digital learning systems

7. ISSUES AND CHALLENGES OF DIGITAL LEARNING

Few challenges are witnessed in the digital learning environment. The most important tool in e-learning is the requirements of an uninterrupted power supply and the Internet facility along with its speed. India has yet not become developed. There lot of rural areas where the reach of electricity is yet to be made. Moreover, the illiteracy rate though going down but acquaintance with technology is still a problem. Another criticality with digital learning is the usage of language. India, a vast diversified country having a variety of ethnicity, cultures, and regional languages makes it difficult to reach the regional learners not acquainted with the common language Hindi/English. It is also said to be distancing the students, isolating them with lower completion rates. "Challenging the tacit epistemology of distance learning, FOLC (Fully Online Learning Community Model) (Roland et al., 2016)holds the constructivist notion which makes all efforts to recognize "reality," comprising virtual reality. It contains social creation of knowledge that not only individually "ingest" the information" [28]

In the recent era of technologies, digital learning platform demands are rapidly increased in education institutions or professional advanced training. Many techniques can be accessed for
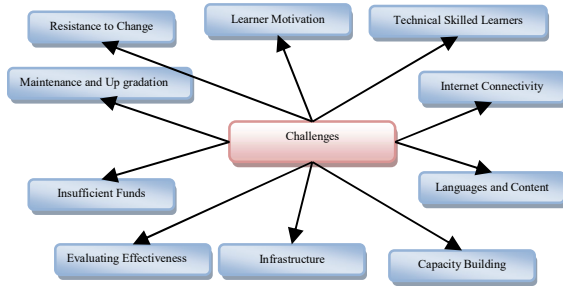

Figure 7: Challenges in Digital learning

Table 4: Details of Challenges in Digital Learning Platform

Challenges	Brief Descriptions
Resistance to Change	Technology-based learning is the biggest challenge. Technologies awareness for smartphones or laptops is another challenge
Learner Motivation	Learner keeps join the session is another big challenge in active mode. Motivate the learners, the benefits of digital learning.
Technical Skilled Learners	Various types of learners in which some have not a technical skill but some have technical skill for any kind of software or hardware knowledge. Skilled learners are one of the challenges for digital learning without it, not possible. Timely give training for recent technologies or software module for learning
Maintenance and Up-gradation	Lack of maintenance and up-gradation of digital learning devices are the major challenge. This is especially in the rural area where these devices are installed by a government agency, Lack of financial support for maintenance and up-gradation of the digital learning system.
Internet Connectivity	One of the major challenges is the connectivity of Internet facilities everywhere. In some rural areas, this facility is available but up to the mark not getting proper speed. So definitely not possible digital learning without smooth steaming of information Weak signal in the smartphone. Costly data rate for smartphone, so rural area people, not possible affordable always.
Insufficient Funds	Technical infrastructure such as hardware, software, and some network devices are always needed for digital learning. Without sufficient financial support, it is impossible to install this infrastructure. The latest hardware and renewal of software is always needed but it requires some funds which are not feasible by developing countries.
Languages	It is a major challenge for both learners and

Challenges	Brief Descriptions
and Content	experts. Digital learning lectures do not possible in regional languages. It is one of the challenges to convert the lecture and content of digital learning into regional languages. It increases both cost and time for conversation.
Evaluating Effectiveness	To track learners for uploading the assignment, submitting quizzes and feedback timely or not. Outcomes of learning are meeting with the objective of course or not. The learner has been skilled or not using this platform
Infrastructure	Before installation of the digital learning platform, it needs to identify the basic needs such as proper electricity, electrical wiring, cooling, or heating system. To check the safety and security majors To check the speed of Internet facility
Capacity Building	Capacity building is one major challenge that includes experts, technical team support, and content development. To identify a skilled expert who has knowledge of the latest technologies or not and can handle smartphones or laptops. The technical team should know how to solve fast if any technical obstacles arise during sessions. Content developers know to develop study materials in various modes such as CD, DVD, e-notes, etc.

Many issues are associated with digital learning but we cannot overlook the perks of it, however, we may have clarifications to solve these problems. The technical problems can be fixed through pre-recorded lectures, tested content, and each time keep alternate plans prepared so that the digital learning cannot be affected. The digital learning courses will be dynamic, fascinating, and interactive. The responsibility of a teacher is that fix the time limits and reminders to make students focused. It is suggested to researchers that hard work should be made to mimic the traditional learning behavior in digital learning to the best level possible, though personal care should be given to students so that they may simply adjust to the digital learning environment. The online social networks (OSN) may be used to communicate with them when it becomes difficult to reach out by using digital content e.g. Texts, MMS, multimedia calls, etc.

The quality of the digital content should be upgraded continuously and stakeholders must effort in the best possible manner with creative, collaborating, relevant, student-centered, robust, group-based, and fascinating. The stakeholders must devote a lot of time to make effective policies for giving digital instructions which assist feedback-based learning. The Institutions will be

the focus on pedagogical concerns and emphasize digital learning, which gives challenging issues not only to find novel technology but also help students, teachers, and other staff who involved to seek guidance for digital learning. If we look over the history and see technologies used in ancient digital learning in India during an era of the eleventh century, however in the fourteenth first printing press was developed by J. Guttenberg; in the sixteenth century, Abacus assisted students to understand basics of Mathematics. Moreover, in the previous century, many inventions are done such as T. Edison encouraged film clips as a replacement for conventional learning; S. Pressy developed the first teaching machine is known as the MCQ machine; digital learning was initiated at the University of Illinois and India' modern digital started by launching of Education-comp. In recent times, around 2010, digital learning start-ups arrived into the market to improve the quality of the education sector. A digital learning app Byju's grow into one of the most valued organizations in recent years.

8.   CONCLUSION AND FUTURE SCOPE

In this pandemic era, it has been difficult for the teachers and students to interact personally or to complete their studies in the classrooms. Therefore in these tough times, digital teaching through cloud computing is emerging as an efficient solution as the world cannot be at a standstill and it becomes the responsibility of the academic fraternity to keep the learning & training process continued. It has contracted the world into a small frame of computers, mobiles, tabs via the Internet. The only requirement is to provide hands-on training to the educators to help them learn the proper use of digital platforms so that they can create a virtual learning base further for their students. This type of learning has many advantages as it not only provides access to worldwide libraries, books, information, researches, News, etc but also decreases the effort, stress, fear, cost, and anxiety of the stakeholders. For this, a suitable method for teaching-learning with support should be provided to the stakeholders. The pedagogical methodologies and technical proficiency of digital educators are of ultimate importance for a rigorous quality management system with continuous process improvement in the area of digital teaching and learning. Now there is a need to consider, digital technologies for teaching and learning support learning as

there is an urgent requirement to consider the pros and cons of digital teaching and learning and harness its potentials.

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