Blended Learning Plays Important Role during Covid-19 for Education Sector: A Review

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Abstract **- Blended learning is an instructing practice that joins, or blends classroom and online learning for students. Nowadays, blended learning models are used both platform for learning such as face to face education and online learning and also teachers can use both leaning platform advantages. The main aim of this review paper, provide numerous definitions of blended learning, four models, challenges, advantage and example of new technologies that is used for online teaching and learning in Indian education system are discussed. The main contribution of this paper is how blended learning is an innovative and emerging technology for students to learn through a wonderful platform via two modes (traditional mode of classroom teaching and ICT supported teaching learning). Although many authors and researchers are deeply described about what is blended learning, what is meant and how students are learnt and use this in whole life.**

Index Terms **- Blended Learning, ICT Teaching Learning mode, Models, Traditional Teaching Learning mode.**

I.INTRODUCTION

As the whole world is fighting against COVID-19 pandemic disease, in this environment all the countries used the doorway for implementation of lockdown. With regards to the education sector, numerous nations have closed down schools and universities. Through technology adoption, teaching is going online on an untested and extraordinary scale. Learners' activities are also going online. Teachers, faculty, learners are doing their part to help one another. Furthermore, these disturbances are an opportunity to reconsider and reflect on the education area. Technology has a key function in educating the people in the future. In a world where information is a mouse – click away, the part of the teacher must change as well [1].

Enhancing student learning encounters has become more significant in advanced education because of expanded student enrollment and expansion[2]. The change includes a wide scope of advancements for educating learning approach, one of which is blended learning. It basically combines face-to-face instruction with individual, student-directed and PC based learning programs. The general amicability between these two modalities shifts between schools and colleges, however the basic methodology is normal to all connect with digital technology at a personal level to overcome the most broadly recognized impediments to learning, including time, financial resources, space, and separated learning capacities and pace. Blended learning gives a model for student-centered learning scaled to a school-wide context. Blended learning is attractive and practical because it combines the traditional classroom approach with the online learning model.

The change remembered a wide scope of headways for educating learning approach, one of which is mixed learning. Mixed Learning fundamentally joins vis-à-vis guidance with singular, understudy coordinated and PC based learning programs. The general amicability between these two modalities shifts between schools, anyway the basic methodology is normal to all connect with computerized innovation at an individual level to overcome the most broadly perceived obstacles to picking up, including time, money related assets, space, and isolated learning limits and movement. Mixed learning gives a model for understudy focused learning scaled to a school-wide setting. Mixed learning is alluring and commonsense in light of the fact that it joins the customary study hall approach with the internet learning model.

II. BLENDED LEARNING

In 2011 Innosight Institute provide a definition of blended learning, "Blended learning is formal

education program in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path, and/or pace and at least in part at a supervised brick-and-mortar location away from home" [3]. In past decade, researchers have suggested more definition of blended leaning because no one agreed-upon single definition.

What do you mean by Blended Learning

Different researchers have different theories for blended learning. [4], tells that "Blended learning is a learning practice that combines, or blends classroom and internet-based learning". The instruction of an exercise happens with both teacher communication and computing devices. For instance, a student learns about programming language C is from her teacher using face to face interaction in online Google classroom, and afterward goes to the computer lab to work on programming question using computing device that already learnt from her teacher.

Blended learning is a teaching approach that has various kinds of training rules and innovations [5]. This learning model intends to give more practical education encounters by joining features and functions of well-known learning and teaching techniques [6]. Blended Learning courses blend on the web and physical study hall learning activities and uses resources assets in an effective way so that to improve student learning outcomes and to discuss significant institutional issues. From an educational viewpoint, blended learning implies courses that incorporate online with conventional face-to-face class activities in an arranged educationally significant way; and where a segment of face-to-face time is replaced by online action [7]. It is basically centered on incorporating two separate ideal models, the classroom – synchronous and online – asynchronous [8].

Students know how to learn and faculty get how to teach to make blended learning approach successful. Many approaches are used for this technique such as Live Classroom Method (Traditional), Virtual Classroom Method, Live Demo or Practice (labs) Method, Broadcast (TV or Streaming Video) Method, Interactive Chat Session Method, Online Information via Web site Method, Online Instructional Materials Method, Online Reference Materials Method and Offline Instructional Materials Method [9].

Fig. 1 illustrates the concept of learning process. Students can learn from home, anywhere, anytime via two modes, ICT Supported Teaching Learning Mode and Traditional Teaching Learning Mode.

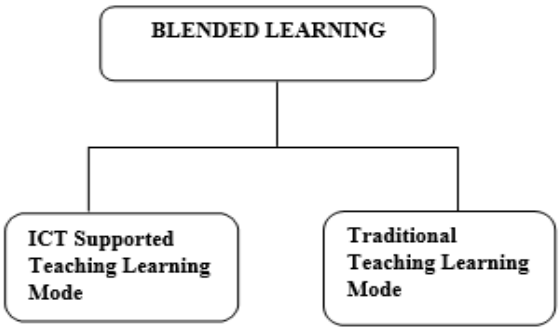

Fig.1 Blended Learning Process for Teaching

The two learning modes also includes Face to face teaching, Student interaction with content, Virtual classroom, online learning via videos and audios and Webinars.

III. BLENDED LEARNING MODELS

Following models takes benefit of improvement in academic or educational technologies for best learning methods. Blended learning models have usually targeted on physical or surface-level characteristics instead of education or psychological characteristics [10].

Researchers and developers prepare more remote learning models and tools, if schools, colleges and other institutes remain closed due to Covid-19. Numerous models of blended learning are showed in Fig. 2.

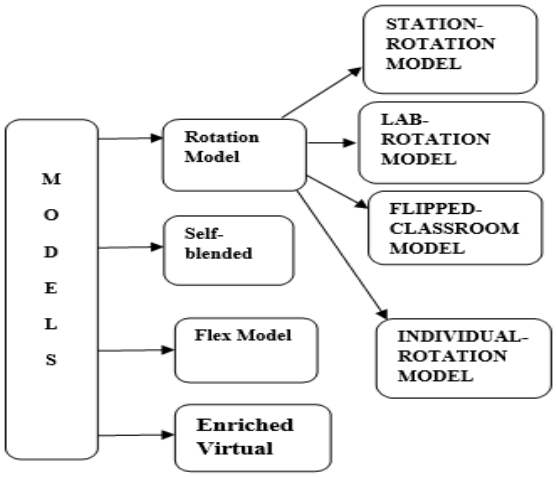

Fig. 2 Models of Blended Learning

A. Rotation Model

The students rotate between different stations and learning modalities in online learning as well as spending face-to-face time with the tutor, full-class instruction, group projects and individual tutoring, in rotation model. In elementary schools, where 80 percent people follow rotational blended learning model in California [3].

1) Station Rotation:

The station Rotation model where students rotate at teacher's interaction with classroom or on fixed schedule based learning modalities, within a given subject. In online learning, at least one station carried out for learning purpose and many more stations might include viz. group projects, individual tutoring, pencil-and-paper tasks and little gathering or full-class guidance. The Station-Rotation model is differs as compare to Individual-Rotation model because students rotate through all of the stations.

Fig. 3 illustrates the example of station rotation model of KIPPLA Empower Academy. The Academy use kindergarten classroom with 15 computers for online subject or course. The students can rotate by teachers for online learning and small-group instruction.

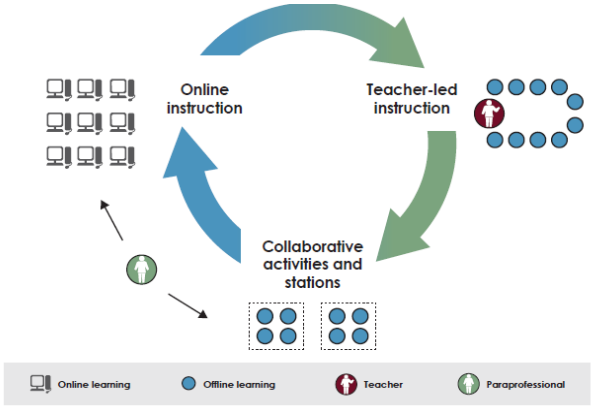

Fig. 3 KIPPLA Empower Academy for Station Model

2) Lab Rotation

Lab rotation model is used for online learning in which students rotate among locations on the campus and no need for additional classroom. Students rotate many locations on the campus for the blended course or subject rather than staying in one classroom. That's why Lab-Rotation model is advanced model as compare to Station-Rotation model.

Fig. 4 shows the example of Rocket ship Education for lab rotation model. Students lean two hours each day and reading through online learning by using Rotation out of their classrooms in lab rotation model.

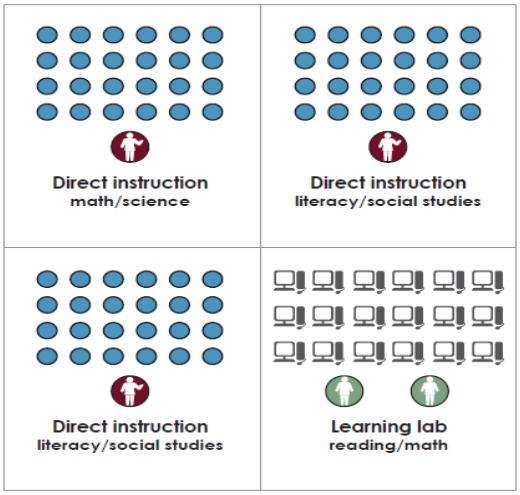

Fig.4 Rocket-Ship Education System

3) Flipped-Classroom Model

The flipped-classroom model where Students rotate, within a specified course or subject on fixed schedule on a campus or school in which face-to-face teacher-guided practice are carried out. In blended learning, the Flipped-Classroom model deal with the better concept that allows students to settle on the situation where they accept or get instruction and content online along with control over time, place, path, and pace.

Fig. 5 illustrates the example of Stillwater Area Public Schools and Croix River in Minnesota for flipped-classroom model. In this public school students use Internet-connected devices for 4–6 math classes for watch ten to fifteen minute instruction videos and complete all the questions.

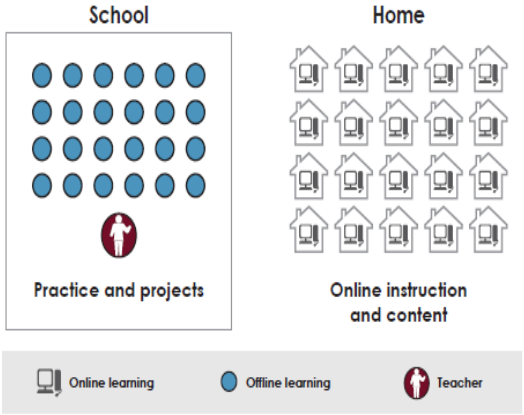

Fig. 5 Stillwater Area Public Schools

4) Individual-Rotation Model

Individual-Rotation Model is the last sub model of Rotation-model in which students rotate on fixed schedule ,an individually customized with online as well as offline learning modalities. In this model, student does not need any rotation for online learning because the teachers fix individual student schedules so the performance of this model is better as compared to other Rotation models.

Fig. 6 demonstrates the example of Middle School and Carpe Diem Collegiate High School. In these schools each and every students assigns a unique and special schedule for online and offline learning.

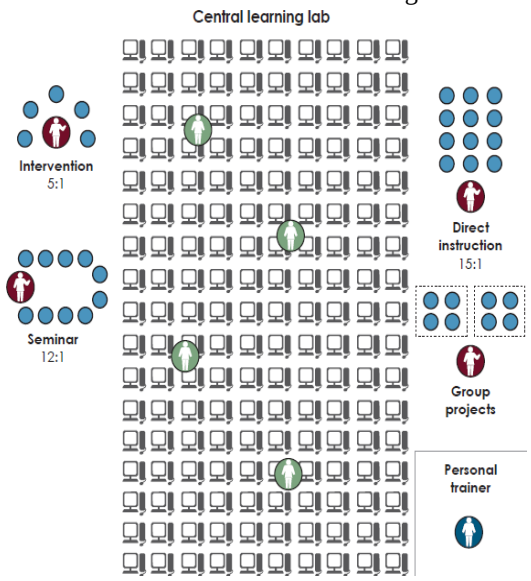

Fig. 6 Carpe Diem Collegiate High School and Middle School

B. Flex model

Flex model is a blended learning model in which students move on an individually customized schedule as well as fluid schedule and the instruction and content is forwarded to students through internet. The teacher or other adults provide face-to-face support as needed through activities such as small-group instruction, group projects and individual training. This model used for multiple activities viz. individual training, small-group instruction and group Projects through teacher or adult face-to-face flexible support and learning process.

Fig. 7 shows the example of flex model that is San Francisco Flex Academy model. In this Academy some elective courses are considered, in which the teachers have provide teachers-of-record through online learning instead of the face-to-face learning.

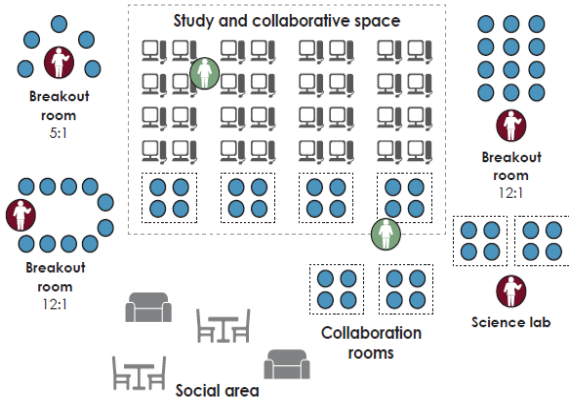

Fig.7 San Francisco Flex Academy model

C. Self-blended Model

Self-blended Model: this model is popular in high school in which students take many online courses to supplement their traditional courses with face-to-face teachers as well as the brick-and-mortar campus. This model is totally different from other models because the students take self-blend some individual online course for learning. In this model students have learn self-blended through online at a home any time during the day.

Fig. 8 illustrates the QCSD model (Quakertown Community School District) example of Self-blended Model. In QCSD School the students have multiple offers (6-12 option) to take one or more online courses. Students complete "cyber lounges" course that has been created by QCSD for enrollment in model. In this model the students can learn and complete their course at free of cost along with teachers-of-record and face-to-face learning.

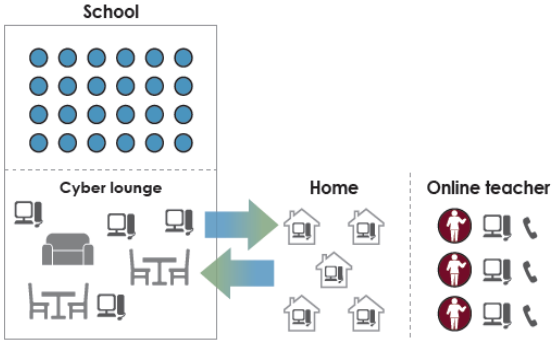

Fig. 8 Quakertown Community School District

D. Enriched Virtual

This model is a form of blended learning where students work or learn remotely, content and instruction is primarily delivered through online

platform. Students also divide their time during attending a brick-and-mortar school or campus every weekday. Some Enriched- Virtual model may have start with full-time online schools via internet, after online learning they have developed blended learning for students to provide brick-and-mortar school experiences. The Enriched-Virtual model provides better experience and performance as compared to Flipped Classroom model and Self-Blend model. In this model student seldom attend the campus every weekday as compared to Flipped Classroom model, it also provide whole-school experience instead of course-by-course model as compared to Self-Blend model. Fig. 9 shows the Albuquerque e-ACADEMY for Enriched Virtual.

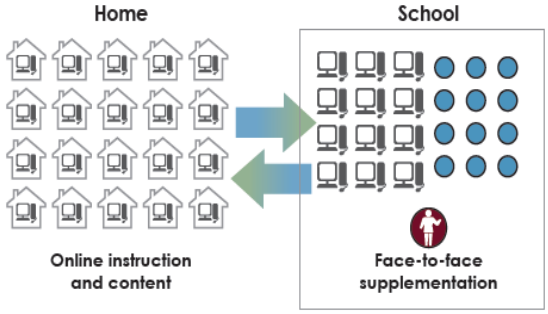

Fig. 9 Albuquerque e-ACADEMY

IV. CHARACTERISTICS OF BLENDED LEARNING

1. Blended learning in which students have the option for two modes for learning first one is traditional mode of classroom teaching and the second one is ICT (information communication technologies) supported teaching learning.
2. The main characteristic of blended learning is the teachers are very technical strong and fully trained for teaching to students via traditional classroom mode and ICT supported mode.
3. The teachers have created and maintained a human touch with students using online mode for balanced student's emotions because the traditional methods balanced the student- teacher relation.
4. In present century all professions demand expertise in modern technologies, so students get fully experience in new technology using blended learning.
5. Students can create interaction with teachers inside the college as well as in virtual space. The teachers develop a love, patience, and feeling of understanding and other cultures with students.
6. The blended learning helps the students to get trained and learn different life skills viz. decision making capability, communication, critical thinking and patience.
7. Students have created all round development of the personality using blended learning.
8. Students get to see the numerous versions and technologies of useful content and knowledge for gaining the variety of experience.
9. Blended learning in which students enhanced their own knowledge via online mode rather than depending on others.
10. Students get interact and communicate with all over the world and share their views and feeling using blended learning approach.

V. ADVANTAGES [8][4]

A. Cost-efficient

Training expenses and ROI are improved by blended learning. Classroom trainings with pre-enlisted courses can be easily combined. In this strategy we can arrange a live training online so our students will be fully informed about everything.

B. Be Consistent in Activities likewise Pre-preparing

Everybody can be on the same wavelength before starting the in-class training. Send materials, videos and pre-course questionnaires to them for reading so they can come arranged.

C. Content should be easily accessible from Anywhere, Anytime, on Any Device

Your learners are often continually associated with your content. They will even download courses for they can get to them without internet access if vital.

D. Effectively Increases User Engagement

The mixture of multimedia and instructional planning will make the ideal formula for a rich learning experience. Students can return to the courses at whatever point they need so they will convey extraordinary results after some time.

E. Get quick reports of your students

Examine the movement of your students and see where they are dominating and where they are struggling. Thusly you can enhance the content so.

VI. CHALLENGES OF BLENDED LEARNING

A. Unrealistic expectations

Students have face many issues some time have unrealistic expectations due to many studies sites have meant less work, timing problems and costly course [15].

Student-perceived isolation

As name implies, students get affected with another challenge for blended learning that is slow Internet connections Poor Internet connectivity [16].

Technological problems for students

An issue related to technology is another challenge of blended learning. This issue can lead to students feeling overwhelmed and tired due to more time devoted to study and bad technology [2].

Time commitment

Amount of time have a big challenge of blended learning, in which online course take more time to learn and enrollment that is similar in a traditional model [17].

Lack of support for coarse redesign

The problem related to universities is the lack of support for course and learning process. The multiple universities can lack of support for choosing the course through online learning activities.

Difficulty in acquiring new teaching and technology skills

This challenge is developed in blended learning, in which help online discussion and new learning technology [18], [19].

VII. IMPLEMENTATION OF BLENDED LEARNING DURING COVID-19

These days blended learning has developed to mean the combination of classroom learning with internet or e-learning. So as to handle global seriousness Indian Students need to be innovative and knowledgeable to speak to their work in worldwide stage. In such case, new method of learning condition is a need of hour. It is a latest pattern of teaching, i.e. combination of face to face and computer aided instructions. In Indian context, blended learning refers to a strategic and efficient way to combining times and methods of learning, coordinating the best parts of face-to-face and online communications for each order, using appropriate ICTs [20].

In India, faculty members of schools, colleges, and universities are using the concept of blended learning. As we have already discussed, Blended learning has two major points i.e. firstly, face to face interaction between teacher and learner, and secondly, the learner uses computing devices for practice. During the COVID-19 pandemic period, Instructors and teachers in India use to deliver lectures through Zoom, WebEx, Skype meet up, LMS, ICT, YouTube, and Google meet, and after that students or learner use documents containing hyperlinks sent by their teachers for practice. And also, teachers send materials like videos, presentations, and notes for student practice. Also, the performance is calculated by learners through quizzes and MOOCs organized by their instructors and teachers. They use Google forms and Microsoft TEAM apps for quizzes and tests. Over time and with continued use of the application, teachers and learners become accustomed to this virtual approach. Regular lectures were arranged using applications for all the learning hours [21].

Student engagement is a test today, tomorrow, regardless of whether disconnected or on the web. At first, faculties had heaps of cacophony towards student engagement during a lockdown. At the point when faculty began taking sessions online, they were stunned to see student's attendance is 20 times better than regular class sessions and it was almost 100 percent attendance while engaging them virtually. There are various courses (a contribution of free Swayam courses) organized by the Ministry of Human Resources Management (MHRD). Numerous foundations were bought into online free courses for students during the lockdown time frame. E-Library sources and EBooks' have been imparted to learners [22].

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