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Blended Learning in Higher Education

Prof. Pund Vandas Pandurang
Asst. Prof.,
Dept. of Economics,
Dada Patil Mahavidyalaya, Karjat

Educationists, policymakers, intellectuals, and think tanks across the globe are reimagining and speculating the future educational landscape in the era of the digital ecosystem. Blended learning is an innovative instructional approach that will reduce educational costs, personalize students' learning experience, and raise student achievement. the current Pandemic of COVID-19 has changed the landscape of the teaching-learning system in India. Digital platforms or the virtual mode becomes the necessary and only option to foster and continue formal or informal education. Higher education 4.0 demands computing skills, digital competency, and techno-savvy ability to handle the future intelligent machine. the synchronous and asynchronous learning approach becomes a very pertinent part and parcel of blended learning.

We, human beings experienced many challenges and many deadly pandemics in the past that can be traced by looking into history. Since nature has its own rule, it will balance the whole ecological system at its own pace. But the fact is current pandemic pushes the world into a new paradigm in all dimensions and facets of our lives, especially in the teaching-learning process. Interestingly, India took leapfrogging steps to the digital world at a significantly faster pace with maximum adoption of technology in Education.

Inspite of the digital divide and inequality, the Indian Government and the stakeholders in academics responded and adopted technology in education at the maximum level. Digital competency and techno savvy skills among all stakeholders enhanced in an unprecedented level. In contrast, teachers become more aware of the techno and digital pedagogy to foster online teaching-learning. University Grant Commission on 20th May, 2020 proposed the blended mode of teaching in a higher education institution. It emphasized 40 per cent online mode and 60 per cent concern of stakeholders in higher education institutes to promote more and more adoption of technology in Education. While if we see the roadmap of National Education Policy-2020, then we will see that one of the core principle of it is the extensive use of technology in education.

Concept of Higher Education 4.0

Higher Education 4.0 is all about giving this new generation of 'digital connoisseurs', the skills, methodologies, learning, and knowledge they will need to succeed in the fast-paced future (Goh and Abdul-Wahab, 2020). One of the key features of Higher Education 4.0 is the learner-centered approach of teaching and learning with flexibility and greater autonomy in learning. Moreover, Education 4.0 is highly influenced and governed by the industrial revolution 4.0. While, one of the core principles of Education 4.0 is learning anytime and anywhere and thereby personalized learning becomes integral part of it. Moreover, blended learning is an innovative instructional methodology that allows learners to learn from anywhere and anytime.

Nevertheless, Higher education 4.0 talks about heutagogy, peergagogy, cybergogy, fluid and organic curriculum, cyber security and smart campus which are essential nowadays (Chea and Huan, 2019). the digital transformation of classroom lectures to blended learning in the 21st century Education ecosystem becomes pertinent (Jones and Sharma, 2021). 21st century global world demands digital competency to deal with machines, instruments, digital libraries, digital health care facilities, digital or E-governance, assessment, evaluation, and embracing blended learning systems. teaching and learning approaches, innovation, and value-added student experiences which use technology and these comes under the preview of the concept of Higher Education 4.0 (Goh and Abdul-Wahab, 2020).

Theoretical Underpinning of Blended Learning in Higher Education Ecosystem

Blended learning is a practice of using both online and in-person learning experiences when teaching students. In other words, it combines offline (conventional) and online learning in such a way that each complements the other. Blended learning also called hybrid learning and mixed mode learning. Basically it is an

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instructional methodology, a teaching and learning approach that combines face to face classroom methods with technology mediated activities to deliver instruction (University Grant Commission, 2021). this pedagogical approach leads to the integration of synchronous and asynchronous learning tools thus providing an optimal possibility for the arrangement of effective learning processes. In a true blended learning environment, both the student and the teacher should be physically located in the same space (University Grants Commission, 2021). Blended learning is a mix of instruction modalities, instructional designs, and delivery media (Graham, 2006). It blends traditional and innovative thus synergizing the learning Endeavour (Chen and Jones, 2007).

Core Components of Blended Learning

Hardware

It includes many physical devices like laptops, computers, smart phones, tABs, Webcam, Projector, Smart board, Voice recorder, Microphone, writing pads, and many more.

Software

Basically, software helps to enable the learning environment. We need the software or software applications that facilitate Synchronous learning like Zoom, Google meet, Skype, Webex, Microsoft team, Go tomeeting and many more. Synchronous learning happens during real-time live face-to-face classes. At the same time, another component of Software is asynchronous learning, which enables learners to learn anytime and anywhere at their own pace. It helps to build the content knowledge and allows students to apply learning in creative ways. Pre-recorded lectures videos and e-content are beneficial for the students to learn as per their need and free time. Learning management system plays a vital role in asynchronous learning, which can be facilitated by Moodle, Google Classroom, Edmodo, Canvas, etc.

Humanware the competencies of teachers for Blended learning. It includes many aspects such as excellent subject content knowledge, competency to develop the e-content for blended class, effective delivery strategies, verbal and nonverbal presentation skills, teamwork or collaborative spirits, engagement skills, and abilities to sustain motivation and interest of the learners.

Nevertheless , another vital component is the pedagogical approach, and which is known as the flipped classroom Pedagogy. Flipping the classroom (also known as the inverting a classroom) is a pedagogical approach to teaching. Where course materials are introduced outside of the class, and in-class time is re-purposed for inquiry, application, and assessment to meet the needs of individual learners (University Grants Commission, 2021).

Features and Advantages of Blended Learning

the essential features and advantages of a Blended Learning environment are as follows:

- Enhance the engagement of students in the teaching-learning process effectively.
- Increased the teacher and student interaction.
- Higher responsibility for learning.
- Flexible and better managing of time to learn.
- Better and enhanced learning outcomes.
- Effective and more flexible teaching and learning environment.
- Promote self-learning and guide or motivate to continuous learning.
- Opportunity and scope for teamwork, collaboration and experiential learning.
- Increased interaction among peers, teachers and among all students.
- Digital learning skills enhanced and built the foundation for lifelong learning.
- Blended learning provides the learning experiences and learning resources repeatable, reliable, and reproducible.

Resources in Blended Learning

Quality teaching learning contents and materials are very vital aspects of the Blended learning as it will enable and foster effective learning experiences. Therefore the followings are the sources from where one can get the resources:

- OERs-Open educational Resources (OERs) are largely freely accessible which includes articles, e-books, tutorial content, recorded lectures, educational videos, e-contents, text, graphics, animations, simulations, Gaming, interactive multimedia and many more.

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- MOOCs-It stand for Massive open online courses. SWAYAM is one such MOOCs platform. It facilitates many courses across the discipline. Many university made compulsory for completing certain credits of their course through SWAYAM platforms.
- E-books-Many e-books or kindle versions of the books available in the national digital library, many open-access platforms, many university websites provide e-books, and also available at e-library or digital library.
- Educational Videos-Many lectures of eminent scientists, professors, teachers, scientists are available in YouTube, Teacher tube and many websites which can be easily downloaded for learning.
- Educational Podcast and Vodcast-Nowadays many recorded educational lectures are being uploaded both in audio and video format in many websites and youtube, which can be downloaded. Many of the podcasts and vodcasts share the experiences of interviews of many competitive exams like NETJRF, UPSC or often describe the strategies for studying or any topic related to academics across the disciplines.
- E-lectures-Many international and national conferences, webinar, symposium or e-symposium, takes place across the world. Moreover, many lectures of eminent professors and teachers are delivered across the country in different platforms .Which are recorded and uploaded in the websites or different digital platforms. Models of Blended Learning There are many models that prevail in Blended learning. According to a recent concept note of the University Grant commission published on blended learning on 20th May 2020, proposed the following seven models
- Blended Face to Face Class-This model is based on face-to-face classroom interaction but before this learner does online activities, quizzes, and assessments at home . While classroom interaction for more higher-order learning such as healthy discussion, teamwork or group activities.
- Blended Online Class: In this model, most classes are done online, but there is limited scope of inperson activities such as lectures or lab.
- The Flipped Classroom-Students watch videos, record lectures or e-content at their home and come to class for interaction, discussion, or complete projects or group works. This will promote higherorder thinking skills and creativity among the students.
- The Rotation Model-It consists of many submodels, mainly station rotation, lab rotation, and individual rotation. In station rotation, students need to rotate between stations in the classroom as per teacher instruction and other work on the educational institute's campus. While in the lab rotation model, students rotate among locations in campus provided at least one of it must be the online lab. In case of the individual rotation model students turns as per the customized schedules for learning.
- The Self Blend Model –In this model, apart from the traditional face-to-face classroom of a course students at their own interst chose online courses and are not directed by teachers which online they have to enroll or join. Students independently chose the cause and learned.
- The Blended MOOC-It is a flipped classroom where in-person meetings take place to supplement the Massive open online courses. Students access the MOOC material from a web source or concerned website; then, after learning from that material, students come to a class for further discussion, in-class activities, and engaging actively in the classroom teamwork or group activities.

Flexible Mode Courses-In this model autonomy is given to the learner to choose the mode of learning, both options available online and in person. For most learning activities in a course, they have the option to chose instructional mode. Why We are Adopting Blended Learning in India

Digital or online learning is the reality in the era of Higher Education 4.0. We cannot avoid the technology in education, it is now became the necessity, not the choice. If we critically analyze the funding and budgeting or say to say grants for the education of total GDP, it is less than 4% since independence. In contrast, Kothari commission (1964-66) and National education policy 2020 say for 6% GDP to be needed for Education in the country. But unfortunately, we fail to do so having plenty of reason and political interests. While Gross Enrollment in Higher education in India for 2019-2020 as per the All India Survey in Higher Education is 27.1 percentage (Ministry of Education, 2021). However, National Education Policy 2020 proposed to achieve 50% within 2030.

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But the reality is that to achieve it we need to rely on the technology and blended learning is the major initiative and seems to better option.

Nevertheless, many of the courses can be run fully on digital platform or online mode. there are several reasons to choose blended learning as the replacement instructional design. First, it is a common type of innovative instructional design in education, with plenty of practice-based evidence that it is an effective instructional design (Watson, 2008). Second, it has a level of synergy that other instructional designs lack due to its many educational modalities and design components. that synergy has received only a basic analysis to date (Jones and Sharma, 2021). A constructivism-based blended learning technique in higher education is a novel concept that combines the advantages of both traditional classroom instruction and ICt-supported learning. Nevertheless, Constructiv is mbased blended learning shifts the information transfer paradigm from teaching to learning, putting learners in charge of discovering, developing, practicing, and validating the acquired knowledge in social collaboration with peer groups and teachers (Mal and Adhya, 2020).

Digital Divide and Blended Mode of Learning

Access and affordability of technology is remaining a concern in developing countries like India. Plenty of factors created the digital gap among the different strata and the learners across the country. the major causes of the digital divide are low internet penetration in different parts and areas in India; secondly, socio-economic inequality; thirdly, social mobility and education, and the fourth one is language barriers. Apart from this physical disability, spatial location, geographical position, policies, culture, and lack of positive mindset or the acceptance of technology cause the digital gap . Moreover, a positive attitude and rational with judicious use of technology is the need of the hours to mitigate and reduce the digital gap.

Issues and Challenges in Blended Learning Mode

While we are moving towards the blended mode of teaching and learning in India, there are specific challenges and issues associated with it, which need to be addressed and take care of for effective strategic learning in Blended mode. these issues are as follow:

- *Infrastructure challenges*: India is a diverse country in geographic landscape, language, demography, socio-economic condition, and so on. Remote areas where Network, Internet facility, Cyber cafe and other essential elements for Blended learning are needed should be taken care. E-inclusion or digital divide need to be addressed as far as India's socio-economic and other diversities are concerned. It needs to ensure the system availability for the Learners from the economically weaker background.
- *Teachers' Techno competency and Techno Pedagogical Skills*: Many good teachers are competent enough in face-to-face and traditional teaching, but many of them are not techno savvy and not techno friendly. More burden on teachers to prepare educational E-content and their anxiety to use the technology is an issue.
- *Quality Open Educational Resources and E-content*: How to identify the authentic and best resources for specific content for teaching in Blended mode. Nevertheless, the Quality Open educational resources and E-content at regional language to address respect for diversity and respect for local context is a concern.
- *Technical and Virtual Platform's Issue*: technical system of devices, Cyber security and cyber etiquettes concerning data repository, e-resources, and online assessment and digital pedagogy these are the prime concerns.
- *Diversity in Disciplines and Competency Based course:* There is need more specific teaching framework and strategy to address Competency based disciplines like Music, arts, Engineering, teaching internship and many more. Design of E-content as per the diverse discipline need to planned properly while executing blended mode.
- *Ethical Issue*: Disciplines, behavior, Cultural ethos, Guru-Shishya or teacher-student relations are few concerns associated with Blended mode teaching.
- *Technology Domination*: It is to be kept in mind that technology should be an aid to education and not dominate education or the learner. .

- *Students Motivation and Interest*: Students are the main stakeholder therefore their enthusiasm, motivation and interest need to be maintained across the discipline.

Implementation Strategies for Blended Learning

Since implementation of any programme and educational or instructional approach in an teaching learning environment. therefore, in order to implement the Blended learning in Higher education, we need to focus on the following strategies

- Proper planning and Roadmap.
- Ratio of online and offline mode that is proposed by University Grants Commission in 40 percent online and 60 percent offline mode, gradually need to increased in the online percentage suppose initially starts with 15 percent in online then subsequently increase but not all of a sudden.
- Active involvement of all stakeholders in academics with taking the efforts in blended learning .
- Set clear and effective learning goals.
- Quality and relevant teaching resources.
- Ensuring the system work for students and teachers.
- training of teachers to familiar with lates technology in education which enable synchronous and asynchronous learning.
- Innovative trends in assessment and evaluation needed like open book examination, continuous and comprehensive evaluation, out of box thinking, e-portfolios, creative products, group examinations for conventional theory papers.
- Use of artificial intelligence in tools for proctoring and assessment.
- Need to reduce digital gap or promoting

E-inclusion.

- Development of E-content at regional or local language.
- Government Initiatives and effective policy to address Blended learning as a high priority to foster teaching learning.
- Rationale and Judicious use of Technology.
- Effective teaching and Pedagogical framework.
- Monitor, refine and repeat to enhance its effectiveness.

UGC recently proposed the IPSIt Model for higher education institutes in India in order to successfully implement the Blended learning across the country. IPSIt stands for Identify Resources and learner centered activities, Provide resources and announce activities on Learning Management systems, Scaffolding and support to learners, Identification of learning gaps and feedback, and testing.

Concluding Remarks

Blended learning can provide diverse experiences within a short interval of time which may not be possible in real-time as far as cost and time is a concern, for example, science experiment via virtual lab, ocean ecosystem view or world view via virtualmode. Exposure to the global Scenario with updated and current contents. It also provides opportunity to enhance computational and digital skills crucial for 21st Century. Access, availability to connect to the best global teachers and experts in a single frame. Presently in Higher education Gross Enrolment Ratio (GER) is about 27.1 per cent while National Education Policy- 2020 proposed 50 Per cent of GER within 2030. But so far the funding or budgeting for education is concern, it is very difficult to achieve its target without looking for effective blending and learning through digital platforms. It is obvious that Blended learning mode having potential to bring revolution in the world of computational technology, digital skills, world-class OER, lifelong learning which are pivotal for the 21st century. Nevertheless, as NEP-2020 talks about the uniform standard of education throughout the county which is can change the entire landscape of education system in India. Moreover, restructure in curriculum and instructional design as per the need of Higher Education 4.0 otherwise the entire concept of Blended mode of teaching-learning seems to be an idealistic and elusive notion. training of teachers and their orientation to handle and use technology. All the stakeholders need to have a positive attitude towards technology in order to gain digital competency and effective implementation of Blended learning

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mode. More and more e-content need to be developed in regional or vernacular language to address and respect the diversity and local context. Better learning management system and software needed to enable synchronous and asynchronous learning. One of the vital issue is the digital divide so far the diversity in socio-economic geographic location, disability, language, education barrier and low internet penetration is concern. Effective mode only possible when there is very minute digital divide or if we could manage to reduce at maximum level. There is need more specific teaching framework and strategy to address competency based disciplines like Music, arts, Engineering, teaching internship and many more while implementing Blended learning mode in Higher education institutions. However, since India made a leapfrogging step at digital and online learning since the outbreak of current COVID19 pandemic, therefore we need effective blue print and roadmap for better teaching learning in digital Higher education 4.0 ecosystems

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