

# Blended Learning- Setting the Background

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**Introduction:** The system of education throughout the world has evolved over ages and undergone massive transformation constantly to adapt itself to the changing needs of the individual on one hand and society at large on the other hand. With the advancement of science and technology, the world has witnessed new paradigm in the field of education be it nature and type of courses and its content or the methodology or the use of technology in the teaching learning process. It's easy accessibility across the geographical boundaries, affordability, economy of time and energy and moreover because of its overall usefulness its importance has been recognized and mostly appreciated world-wide. The transition from traditional chalk and talk method to modern technology based smart classroom have made education not only more interesting and interactive but it is also learner centric, need based, life centric. Use of multimedia and smart classroom has helped students to identify and develop their learning abilities, latent potentialities and others skills in a much better manner.

According to Peter Drucker a notable economist mentioned that we are gradually moving towards knowledge society where creation, dissemination, utilization of information and knowledge has become the key factor of production and where a large portion of the labour force are basically knowledge worker who are both knowledgeable and skilful. In such societies attempts to make knowledge available to all its members with a vision to improve the human condition by developing their ability to acquire, analyse, interpret and utilize the knowledge for the advancement of mankind. With the advent of digital learning both the educator and educand have started embracing the concept of blended learning. In the present day concept blended learning can be a useful alternative method of teaching, where a harmonious combination of recent technological innovation and the teachers-student active participation can be noticed in the teaching learning process because any technology cannot be a replacement of a teacher. Thus, blended learning needs utmost attention and research to make it a viable mode of education in the days to come. In this paper the researcher has made an attempt to study the concept, definition, models, effectiveness, role of the teacher, prospect and challenges and the Indian scenario of blended learning.

## Concept and definition of Blended Learning:

The term blended learning was first coined by Cooney et.al. in 2000 and it became popular in last two decades. Over the last two decades, there has been a number of research work has been conducted on blended learning; which has unfolded a lot of details of it such as meaning, nature, effectiveness, blending process, methods, technique, adoption or implementation process etc. But still there is ambiguity about what exactly is meant. In this paper the researcher attempts to understand the true meaning, concept, effectiveness of blended learning on different levels of education.

In the proceeding of Educational in a Changing Environment Conference of Salford University, Procter, C. (2003) defined blended learning as "Blended learning is the effective combination of different modes of delivery, models of delivery, models of teaching and styles of learning" [1]. Bonk, J.C. and Graham, C. R. in 2004 gave most three common definitions of blended learning: "a) A combination of instructional modalities (or delivery media), b) A combination of instructional methods, c) A combination of online and face-to-face instruction" [2]. In the research of Oliver, M. and Trigwell, K (2005) they attempted to conceptualize the term blended learning simply requires two or more different kind of things that can be mixed. They argued that the breadth of interpretations means that almost anything can be regarded as blended learning [3]. In 2002 a definition was given by Discroll, M. in which researcher defined blended learning with more refined way. "a) To combine or mix modes of Web-based technology (e.g., live virtual classroom, self-paced instruction, collaborative learning, streaming video audio and text) to accomplish an educational goal. b) To combine various pedagogical technology (e.g., constructivism, behaviourism, cognitivism) to produce an optional learning outcome with or without instructional technology. c) To combine any form of instructional technology (e.g., Videotape, CD-ROM, Web-based training, film) with face-to-face instruction led training. d) To mix or combine instructional technology with actual job tasks in order to create a harmonious effect of learning and working" [4]. Thus, it can be said that blended learning is an instructional approach where two modes of instructional method are mixed/combined to provide flexible, self-paced, student centric, constructive learning. With the passage of time the concept of blended learning has undergone changes. At present it refers to the blend of online and offline or face-to-face traditional learning. There exists another ambiguity about blended learning is that what percentage of online and offline activity should be included in the curriculum to be considered as blended learning. According to Bernard, R. M. et. al (20214) at least 50% of total course should be presented or taught through the face-to-face learning. In the context of institutional adoption of blended learning in higher education, Porter, W. W. (2017) recommended that 50% online class should be included in the total course. Diep, A. N. et. al. in 2017 suggested two modes of learning in their research one is 25% and the other is 50% online class [5]. The report of UGC on the concept of blended learning recommended blended learning under which up to 40% of a course can be taught online and the rest 60% through traditional face to face learning or offline methods at all higher educational institutions [6].

## Historical background of blended learning:

Blended learning is a potential outcome of technical revolution in the field of education. The initial concept blended learning first came in 1840 when the first distance course was introduced by Sir Isaac Pitman. His course was shorthand centred. Pitman used to send shorthand texts to his students via mailed postcards and they were required to send them back after filling these shorthand texts for correction and to obtain grade [7].

The computer-based training started its journey in the period of 1960-1970 to train thousands of workers at their workplaces to upgrade their skills. The multimedia era arrived around 1980-1990s. In this period the satellite based grounded video CD-ROM was introduced for distance learning where learner could learn with the high-quality audio video materials. The first-generation web-based learning or e-learning or the first virtual classroom was developed by AT and T in the period of 1996-2000. According to Ahmer, G. the first-generation web-based learning was introduced in 1998 [8]. The integrated blended learning involving/utilizing the web, audio, video, simulation, instructor-led-training and more has been practiced since the year of 2002 [9].

The term blended learning and the methodology was used and tested for the first time in US at prekindergarten level to acquire blended activities by Cooney et.al in 2000 [10]. In the same year an US report was published in which the Interactive Learning Centres, an Atlanta-based education business announced a change of name to EPIC Learning and they are currently offering 220 online courses by using blended learning. During this period various researches were conducted like by Voci and Young (2001), Bonk et. Al. (2002), Stewart (2002) which integrated e-learning into face-to-face instructor-led learning programmes. Results revealed that blended learning is favoured as enjoyable and flexible [511].

The concept of blended learning became more concrete in the period of 2003-2006. This period can be called as definition period of blended learning. Osguthorpe and Graham (2003) defined blended learning as follows "Blended learning combines face-to-face with distance delivery systems... but it's more than showing a page from a website on the classroom screen... those who use blended learning environments are trying to maximize the benefits of both face-to-face and online methods." (Osguthorpe and Graham, 2003). Singh, H. from India (2003), Garrison and Kanuka (2004) conceived of the blended learning as thoughtful integration of online and offline learning experience, self-paced, collaborative, structured and unstructured learning approach. Later, Graham and Bonk summarized the concept, definition, trends, blend categories challenges and future in his handbook published in 2006[11].

In India blended learning started its journey from 2000. During that time computers were not restricted only to the institution or organization but to the households. But, web-based-learning geared momentum since 2004 when the government of India formulated its broadband policy. It gained so much popularity that, at present approximately 624 million Indian population uses internet in their daily life. In 2007 Sloman, M. done a survey supplemented by extensive case study interviews to see the scenario of India and 18 other countries in the world considering blended learning in the global context, and the research revealed that the concept of blended learning has arrived and is here to stay [12] and what researcher predicted has really matched at the present time.

Thus, the historical background revealed that the blended learning begun its journey in a different context but over the time the its meaning and definition has been changed with the adaptation of technology and now it fulfilling the social demand.

#### **Models of blended learning:**

Different models of blended learning have been invented so far and further research is still going on in this regard. Graham in 2006 mentioned "Although there is a wide variance in the blended learning practices that are occurring, there are also some strategic similarities that will be articulated in following section." He mentioned blended learning occurred at one of these four levels- a) Activity level blending: When a learning activity contains both face-to-face and computer mediated elements. b) Course level blending: It entails a combination of distinct face-to-face and computer mediated activities used as part of a course. c) Program-level-blending: Here researcher entailed two types of models one is when the participants choose a mix between the face-to-face course and online course and another is the combination between the two is prescribed by the program. d) Institutional-based blending: When an institution or organization try to blend face to face and computer mediated instruction. In these models Graham favoured for a desirable blend, to avoid the weaknesses of face-to-face and online learning [2].

In 2008 Watson demonstrated the blended learning through some examples. One is the "Blended learning defines a major segment of a continuum between fully face-to-face courses that use few or no internet-based resources." On the basis of this definition Watson categorised the blended learning continuum. These are- a) Fully online curriculum with all learning done and at a distance and no face-to-face component. b) Fully online curriculum with options for face-to-face instruction, but not required. c) Mostly or fully online curriculum with select days required in classroom or computer lab. d) Mostly or fully online curriculum in computer lab or classroom where students meet every day. e) Classroom instruction with significant, required online components that extend learning beyond the classroom and beyond the school day. f) Classroom instruction integrating online resources but limited or no requirements for students to be online. g) Traditional face-to-face setting with few or no online resources or communication [13]. In the same year Chew, Jones and Turner examined critically the issues regarding the models of blended learning based on two prominent educational theorists, Maslow's and Vygotsky's view. Four models were chosen for their holistic idea related to blended learning. These are a) E moderation model emerging from open university of UK. b) Learning Ecology model by Microsoft system. c) Blended learning continuum in University of Glamorgan. d) Inquiry based framework by Garrison and Vaughan [14].

According to Staker and Horn the majority of blended learning programs emerging across the K-12 sector today. In 2012 they introduced four models of blended learning and these models are widely used by the practitioners at this present scenario. The models are- a) Rotation model: A program in which a given course or subjects rotate on a fixed schedule or at the teacher's discretion between learning modalities, at least one of which is online learning. b) Flex model: A program in which content and instruction are delivered primarily by the internet, students move on an individually customized, fluid schedule among learning modalities, and the teacher-of-record is on-site. c) Self blend model: In this model students choose to take one or more courses entirely online to supplement their traditional courses and the teacher-of record is the online teacher. d) Enriched virtual model: In this model the entire school experience, in which each and every course will be divided into brick-and-mortar campus and learning remotely by using online delivery of content and instruction by the student [15].

#### **Effectiveness of blended learning at different level of students:**

Cooney et.al. in 2000 tested the blended learning for the first time on pre-kindergarten student of America to understand how student acquire blended learning activity. In this research Cooney combined the play and work method as blended learning. Result revealed that student can easily acquire the blended learning activity. In the year 2001 and 2002 Voci and Young, Bonk et.al. tasted the

effectiveness of blended learning in order to develop leadership quality and profession skills of the students and concluded that blended learning can actually helps the students to develop professional skills and leadership attitude and it is as enjoyable as flexible.

Recently more and more research has been conducted in abroad as well as in India to identify the effectiveness of blended learning in the present-day context. Few notable works in this regard are presented below. In 2018, a case study was conducted in Thailand and by Anaraki, F. on undergraduate students and blended learning impacted positively on their understanding of the subject and improved their exam results above prior expectation [16]. In the same year another pilot case study by Oweis, I. T. had revealed that blended learning has a positive impact on students' achievement and motivation of Jordanian University, German [17]. The research conducted in India also revealed that blended learning has a string and positive impact on students' academic achievement, motivation and to develop professional skills and so on. In 2018 Kavith, R. K. and W. Jaisingh done an experimental research on 200 undergraduate and post-graduate computer science students to examine the effectiveness of blended learning environment in Indian educational setting. Result indicated a positive correlation between 'time saving' & 'confidence support' and 'Knowledge sharing' & 'confidence support' [18]. Another finding was that a significant level of collaboration occurs between peer learners and the faculty handling the course in a blended learning environment. In the same year another experimental research thesis was submitted in 2018 by Deivam, M. and Devaki, N. to find out the effectiveness of blended learning. The research was conducted on B.Ed trainees of two different colleges of Dindigul district Tamil Nadu. The findings revealed that blended learning has a large impact to get greater achievement in educational psychology and blended learning is potentially powerful tools for extending opportunities in teacher education [19].

Tough majority of the research so far has indicated a strong positive impact on teaching learning process yet few research pointed out its negative impact. For example, Smith, V. N conducted a quasi-experimental research to explore the impact of blended learning vs. face-to-face tuition over one year K-12 school in Auckland, New Zealand in 2013 and no difference between the classes on any item of assessed work was observed [20]. López-Pérez, M. et. al. in 2013 and Kwak, D. W. in 2015 also found that blended learning has no impact on students' performance and negative effect on course persistence of adult learners and increases drop-outs, if the learning is not cumulative and also mentioned that the time employed in carrying out online tasks did not influence the result achieved but the marks obtained in such activities were a significant factor. In the research of Ullah, O. et. al. in 2017 no significant relationship has been found between students' interest in computer, usefulness of computer to students and easiness in using online learning [21][22][23].

The effectiveness of blended learning depends on some factors like students' socio-economic condition, diversity of preferences between, teachers' interest in order to use technology, rate of class attendance, attitude of teachers and students, the subject content, previous knowledge of the student, the infrastructural facility of the institution. Some silent factors which influence e-learning or blended learning according to Nortvig, M.A. et.al. are educator presence in online setting, interactions between students, teachers and content, deliberate connection between online and offline activities between campus and practice related activities [24].

#### **Challenges and prospect of blended learning:**

Hofmann, J. in 2011 in his research mentioned ten challenges in regard to use blended learning in the regular teaching-learning process and also discussed about the possible solutions to meet those challenges. The researcher categorised the problem into three different categories and named as: a) Technical challenges, b) Organizational challenges, c) Instructional challenges.

According to the researcher the technical challenges are not about getting technology to work on networks; rather, they are concerned with ensuring the success of the program by utilizing and supporting appropriate technologies.

- i) Ensuring participants can successfully use the technology.
- ii) Resisting the urge to use technology simply because it is available.

In the context of organizational challenges, the researcher mentioned that management often agrees that blended learning is correct direction for training initiatives, but it fails to understand this is a complex process that needs thought beyond an individual program.

- iii) Overcoming the idea that blended learning is not as effective as traditional classroom training.
- iv) Redefining the role of the facilitator.
- v) Managing and monitoring participant progress.

A well-planned instructional design is the key element of an effective teaching learning process. In this context the researcher commented that when learning technologies are introduced, attention often is paid to the technology implementation, while the actual design of appropriate content is left with too little time and budget to create a successful program.

- vi) Looking at how to teach, not just what to teach.
- vii) Matching the best delivery medium to the performance objective.
- viii) Keeping online offerings interactive rather than just 'talking at' participants.
- ix) Ensuring participant commitment and follow through with 'non-live' elements.
- x) Ensuring all the elements of the blend are coordinated [25].

Numerous researchers found in their studies that blended learning is more effective than online learning or face-to-face traditional learning (Lim, H.D. et.al. in 2007 and Means, B. et.al. in in 2001) [26][27]. Blended learning has number of advantages over face-to-face traditional learning or solely online learning course. One of the advantages of blended learning is its flexibility and student's centricity and it can be adopted for the any type of learner and according to their study need. The National Academy Science, Colombia University published a meta-analysis report of 225 studies that compares students' performance in 2014 under condition of active learning/ blended learning vs. traditional learning and result indicated that failure rates dropped from 34% (traditional lecturing) to 22% (active learning) and learning gains showed a significant improvement when looking at the exam scores and concept inventory performance (Freeman et.al 2014) [28]. The research of Buran, A. and Evseeva, A revealed that the integration of blended learning course can be implemented successfully through a meaningful and planned combination of online and traditional course design. The finding also revealed that 87% students studied online lectures actively and 80% of them passed successfully

their individual tasks and almost 95% respondent appreciated the opportunity to have free access to the material and task anywhere anytime [29].

The university of British Columbia published an overview in their conference proceeding on blended learning in which they mentioned five benefits of blended learning. These are:

- Enhance opportunity for student control of their learning.
- Free up class time for more interactive elements
- Increased learning opportunities resulting from a greater variety in teaching modalities, approaches and resources.
- More flexible access to content and instruction at any time from any place.
- Possibility of tracking multiple issues when a problem is multi faced [30].

India is making headway in digitising the learning process to enhance the quality of higher education as it has gaining momentum since the Union Budget 2017 (Md. Sajid Kan). Indian government focused on providing high quality education for all and making India a global knowledge superpower in NEP 2020 [31]. After publishing the policy, in 2021 UGC gave a clear idea about blended learning in their report, where they mentioned in achieving quality education blended learning can play a significant role because of its flexibility and student centricity. In this report UGC illustrated a detail plan for implementing blended learning at different stages of higher education [6]. It is to be expected that blended learning will be widely used as an instructional method in the coming days.

#### **The role of the teachers:**

Teachers play a significant role in any kind of teaching learning process because education is a two-way process where the teacher belongs to the teaching end and plays the key role. Though blended learning fosters self-learning habit of the students still the role of the is not passive here. In blended learning the role of the teachers shifts from the knowledge provider to coach, mentor, motivator and facilitator who adopts and create a flexible learning environment for the students through blended learning. But researches revealed that teacher's negative attitude towards technology has become a major obstacle in the way to implementation of blended learning (Shaher-Al-Saleh, R. S. in 2018, Suri, G., and S. Sharma, in 2016, Reddy, S. R. M. in 2013) [32][32][34].

A US based company Edgenuity defined that what should be the role of the teachers in a blended learning classroom based on researches. These are as follows:

- Understand the technology students will be using.
- Create a data-driven culture.
- Set high expectation.
- Carefully plan offline activities.
- Promote deeper learning and check for understanding.
- Tech students metacognitive and self-regulation skills.
- Make learning relevant and engaging.
- Monitor data.
- Provide positive feedback to students and celebrate success.
- Encourage online discussion [35].

#### **Present scenario of blended learning at undergraduate level:**

According to the Eric database, 1998 research publication has been published since 2020 on blended learning at undergraduate level in which 39 Indian research publication was found. These researches tried to find out the effectiveness of blended learning on different subjects and age group of students, comparative research with the blended learning vs. traditional face-to-face learning vs. online learning, student's and teachers' attitude towards blended learning, implementation procedure, models, program development and etc. In this paper the researcher mentioned some of the notable works.

Bhagat, K.K. (2020) conducted research on management students of Uganda Management Institute to find out difference between blended learning course and not blended learning course, relationship between learners' perceptions, motivation, digital literacy, attitude towards learning and final grade in a blended course. Result indicated that the participants in the BL group performed better, final score was not associated with participants' perception, motivation, and digital literacy and the instructor mentioned that professional training facilitated them to design their blended course [36].

Heilporn, G. et. al. in 2021 published an article to qualitatively examine how teacher fostered student engagement in blended learning. Twenty semi-structure interviews with teachers in various disciplines, at undergraduate and graduate in four universities were conducted and analysed. The findings of the study emphasized the importance of fully exploiting and integrating both modes of blended learning in order to optimize students' engagement. The strategies were classified into three meta categories and eight categories, as well as concretely illustrated in varied contexts to guide practitioners and researcher [37].

Vijayaraghavan, A. P. and Chattaraj, D. (2020) studied briefly to analyse the ELT situation in India and to identify an approach to EFT that would cater to the undergraduate learners across the disciplines of social sciences and humanities in the context of urban area and the study successfully provides an instance of a course that could significantly influence the pedagogical approaches to ELT in the higher education context of India [38].

In 2021 Kaushik, M. K. and Agarwal, D. conducted a survey study in Indian context to identify the factors among the student that can be inhibit students from using online learning platform. The survey result indicated that students' have a positive approach towards e-learning approach. Discomfort in using the newly innovated e-learning platforms was also found [39].

#### **Conclusion and Discussion:**

In this research researcher illuminated many factors regarding the blended learning and reviewed 95 research articles. The previous researches showed that the effectiveness of blended learning depends on many factors like socio economic condition of the learner, affordability of the technical equipment of the learner and institution, the attitude of teachers towards a change in their daily lecture,

students' attitude towards blended learning and many more. Researches revealed that the blended learning is much more popular in abroad countries than India. In in also blended learning gaining its momentum gradually specially in the field of higher education. In this period of Corona epidemic situation, the blended learning became more popular. The entire teaching learning process has been conducted through online medium and for some little time students and teachers are only meeting in the classroom just to submit assignment or to appear in the examination. It can be expected that as the situation gets better that face-to-face classroom will regain its momentum and the teaching learning process would be conducted through the blend of face-to-face and web-based learning system. Because the researchers have already proven that solely face-to-face or online learning process is not sufficient to provide quality education. Though blended learning has many challenges in regard to adaptation in an institution but still blended learning can be an alternative to provide quality education and to produce productive citizen.

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