

## ICT for Blended Learning in Higher Education

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### Abstract

Information and communication technology (ICT) in education is the use of technology to enhance and optimize the delivery of information. It is being used successfully for teaching-learning. Research has shown that ICT can lead to improved student learning and better teaching methods.

Blended learning can now be more effective with the help of ICT. Combination of both traditional and online methods can ease learning experience. It can enhance student learning outcomes, improve student motivation, retention.

Universities are coming up with the new approach of Blended Learning. This paper will focus on the usage, facilities of ICT for Blended learning in Higher education.

**Key words- ICT, Blended Learning, Higher Education**

Blended learning (also known as hybrid learning) is when traditional classroom teaching is combined with online learning, allowing the student to have more control over the time, pace and style of their learning. The concept of blended learning by Kahyalar (2016) described that blended learning can maximize the program's learning outcome and expense. Besides, blended learning is a combination of online and face-to-face (Simpson, 2016). Thus is defined a mixture of face-to face and Computer Assisted Learning (CAL) in a single setting for teaching and learning. Blended learning is an effective approach to the passive knowledge engagement of a massive number of students, which also increases learning outside the traditional face-to-face learning environment (Oakley, 2016).

Currently, blended learning is trending among higher education institutions around the globe. *Despite its popularity, no model exists that describes the motivation that affects instructors' opinions and beliefs regarding online learning.*

In reality, various ideas have been applied to e-learning. It is for that reason that it is identified with different words, such as computer-based, technology-based learning training, and computer-based training thus, various training courses are established. Collis, De, and Boer, (2006) agreed that computer technology produces the experience of learning.

Blended Learning is currently trending among institutions due to its positive impact on student motivation and performance in general, as indicated by Lu et al. (2018). According to Pardede (2012) E-learning enables learners to freely access, create, plan, and coordinate by using knowledge and communication to build and create interaction technology. The current trend of technology utilization in our daily routine lives has brought about changes with regard to knowledge

distribution, construction and reconstruction (Lim & Wang, 2016). The widespread availability of information and communication technologies (ICT) has also transformed higher education institutions into multi-choice learning environments that complement classroom learning experience and increase learning based on individual preference, which is independent of time and place (Singh & Kaur, 2016).

Blended Learning helps instructors engage students in active learning that promotes skills such as *communication, information literacy, creativity and collaboration* that transform into the ability to use digital technologies

However, there is a desire to transform teaching and learning from a teacher-centred model to a learner-centred model through instructor empowerment with ICT integration in all aspects of teaching and learning (Jani, Muszali, Nathan, & Abdullah, 2018).

Recently, HEIs have experienced a shift in perception from fully online distance learning towards BL as an enhancement of face-to-face teaching methods (Johnson et al., 2016).

Now online teaching has been done successfully with mobile technology. According to International Telecommunication Union (2011) There were 6 billion mobile subscribers which is equivalent to 87% of the world population and 6.9 billion by the end of 2013.

The mobile penetration in developing world is now 79%. The number of active mobile subscription in India in September 2012 were 698.96 million. Mobile connection per 100 people in India was 74.49. Mobile Tele density in urban area was 154.64 compared with 39.52 in rural areas. ( OmPrakash Sharma, university news, vol.51 No.7 February 18-24, 2013).

At present India ranks 63/79 in Global competitiveness Index (GCI) with a score of 39/120. China ranks 22/79 with a score of 62/120. The four technology enablers are broadband, cloud, artificial intelligence (AI) and internet of things (IOT). Now 5G internet connectivity is being used in India.

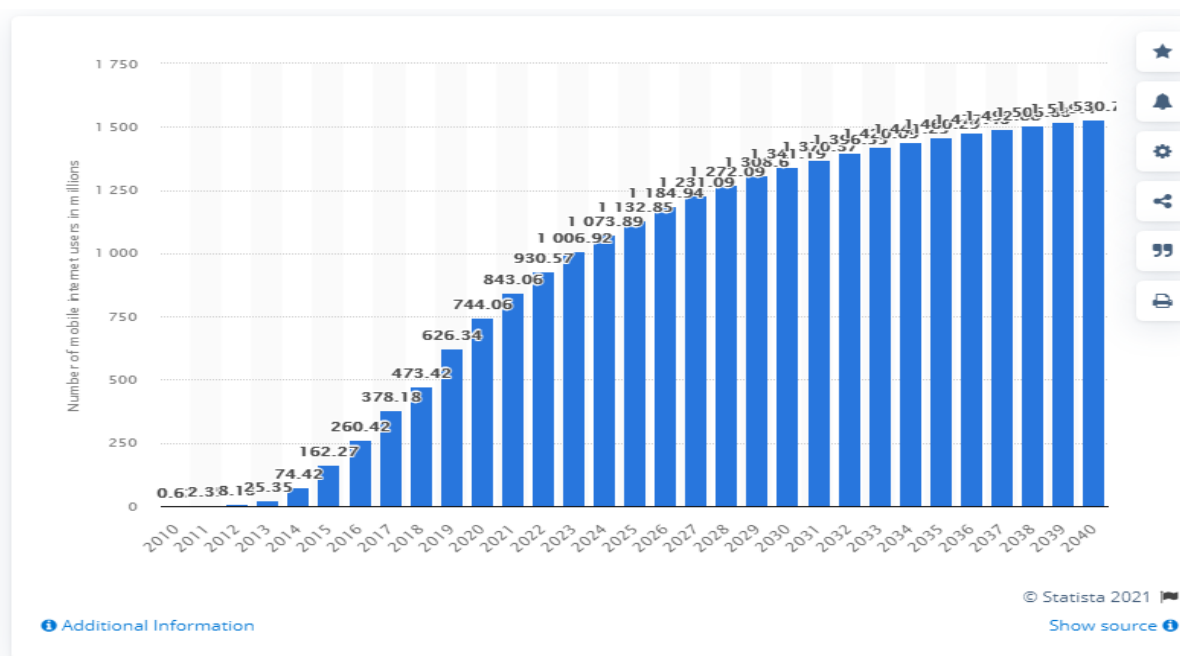
### Number Of Smartphone & Mobile Phone Users Worldwide (Billions)

	Number of smartphones	Number of mobile phones
2021	3.8	4.88
2020	3.5	4.78
2019	3.2	4.68
2018	2.9	4.57
2017	2.7	4.43
2016	2.5	4.30

#### Mobile penetration in India in 2020

India's digital journey is one of exuberance. The country had the world's second-largest internet population at over **749 million** users in 2020.

#### Number of mobile phone internet users in India from 2010-2020, with estimates until 2040



#### How 5G services can help in the field of education?

Faster connectivity, internet TV, video on demand, audio- video calls and high speed data exchange became reality in the field of education. It may be pointed out that when the network provides large pipes of data , any sort of content in the internet becomes instantly accessible regardless of time and location, interactive

experience, handy connection that be taken even to the remote village, easy peer-to-peer sharing, Instant communication.

Accessing to many educational references, supporting innovative teaching practices, providing flexibility, providing better teaching and learning environment, proving innovative technology, SMS is one of the most common wireless application used with mobile phones to support teaching learning. MMS can also deliver information through text messages, sound images and video messages.

Improved interaction between teachers and learners and collaboration among peers

Accelerated quality and adoption of immersive learning

Personalized learning experiences-virtual teaching assistants could allow cohorts to access different sets of lessons and assessments depending upon the profile and preferences of learners.

High speed learning-make learning on-the-go easier, providing greater responsiveness and speed across all devices, especially mobile.

Boon for under privileged or differently abled children-

5G enabled Verizon innovative learning brings learning to life through immersive worlds. It has the power to change the way all can learn.

### **ICT and Blended Learning**

Information and Communication Technology (ICT) In the 21st century, ICT is an integral part of our daily lives and plays an important role in human development, including the education field. ICT (Internet Computer Technology) technologies are progressing the range of workable options that can enhance inputs for teaching, learning methods, and results Pardede, (2012). ICT now provides abundant connectivity to internet access devices to create and distribute audio-visual, multimedia, discussions, and materials learning and teaching improvement. Technology for media and communications has made it possible for students to learn anytime and anywhere details. Since online learning is maintainable, the network provides students with accessible information.

Besides, Rombe (2014) also emphasized that it was teaching and successful learning using technology will contribute to greater academic achievement.

In the teaching and learning systems, the introduction of ICT has opened up the road to modern and creative teaching and learning approaches. One of the most common strategies is called

blended learning. This strategy is often referred to as hybrid learning which most often involves face-to-face training with asynchronous and synchronous computer technology.

It has attracted many researchers and educators because of its great potential to leverage the best benefits of face-to-face learning and ICT in learning activities. It

is predicted that today's teachers will foster a better learning environment both inside and

outside beyond the school. Just like the world is accompanied by digital technology, youngsters today are part of a digital community where they are the regular use of cell phones, laptops, and tablets. Since the appliances are rising day by day, adding technology in the field of education is a must (Islam, 2018).

### **ICT approaches**

Teachers and parents are very, very critical and anxious about this generation of touch screens.

Google views this matter in 2014 for the introduction of a technology-based platform of learning in which these gadgets are used. It is possible now to teach a caring young generation by using ICT in a joyful way.

### **Google Classroom**

Since the Google Classroom is an app-based and web-friendly online learning programme. Google Classroom is making teaching more efficient and meaningful by performing tasks effectively. It is fitted with different features that allows the teacher to more efficiently manage the class through Google Mails, Google Docs, Google Drive, Google Slides, and Google Slides. Google Classroom is also an online course environment network that supports all blended learning inside the classroom and beyond. Google Classroom is essentially online support for teaching and learning. This simplifies the way of transferring and receiving in a paperless way and grading tests. Besides, this enables both teachers and students to interact well enough in collaborating the learning and teaching outside the classroom (Islam, 2018).

More professional, Google Classroom provides the actual technologies that can be used in learning environmental coverage as a Google app. One can build and participate in Google if students and teachers have a Gmail account.

Building the task of Google Class is quite simple. The creation of the class is basic, and then the instructor will have the class code for the class. Thus, learners can directly use the code by using the code. After that, the teacher creates a note, gives the task, checking the assignment, or even sending e-mails to the students.

For the purpose, Google Calendar can be used outside the school with complete historical detail dates and activities. Besides, Google Forms is capable of being used for peer-grading evaluation. Learners can construct new learning experiences objectives by seeing the participants in the classroom. It is generated based on value, level of reading, willingness, or other teaching and learning factors as well as for class discussions and projects. Document on Google is used for paper sharing and communication work on ideas for publishing. The teacher is also able to contact or invite another student in Google Classroom by video chat.

There's a timeline in Google Classroom that is designed. It occurs whenever anyone logs in to the class. Furthermore, either students or teachers will build files and documents which can be exchanged with each other. If the students work in a

team, they will build and share the folder. Then, the work of the group will be opened to each other part, even if there is one or more absent.

### **Benefits of Google Classroom**

Mafa (2018) mentioned the benefits of using Google Classroom to support learning activities. Some benefits are classified into some aspects such as;

(1) classroom management, Google Classroom empowers educators' obligation to build and submit simple materials content for students. The material may be in the type of files, images, audio, archives attachments, and photographs. It also offers a discussion forum where learners can communicate with each other easily. It encourages other functions, such as alerts, next assignment, timelines, and responses. Thus, students are in a position to handle their effective leadership,

(2) Flexibility, can be obtained by students and teachers from Google Classroom.

The different features can be gadgets, such as personal gadgets, PC or mobile. Utilizing Google Classroom is easy with a Gmail account.

(3) Safety and security, students should register for the class by attempting to enter the coding of the class

(4) Promote collaboration, Students have access to others on the discourse board that encourages to have stronger cooperation with them. They can review the assignment or project online.

Besides, the instructor can engage parents or representatives of students to participate in a class. It implies, they mean, they're the progress of their children can be monitored at any moment. Thus, students can get quickly notified of any news or questions elsewhere in the curriculum class.

### **Blended Learning has a blend of-**

1. Different types of learning resources
2. Different types of learning activities
3. Different places and times where learning activities take place
4. Different ways that people interact with each other
5. Grounded in strategic learning model
6. Can work under the guidance and management of a capable instructor
7. Assessment
8. Whole process coordinated in an efficient way via web based learning support system

### **Blended learning involves**

Flexibility

Focus not only in the learning content but also on doing and contributing

Learner's participation

## Blended learning brings two major changes

Improving the logistics of learning- to make learning much more easier, efficient, more professional, better organized.

Improving the pedagogies of learning –with flexibility of style, time and place

### Pedagogical changes

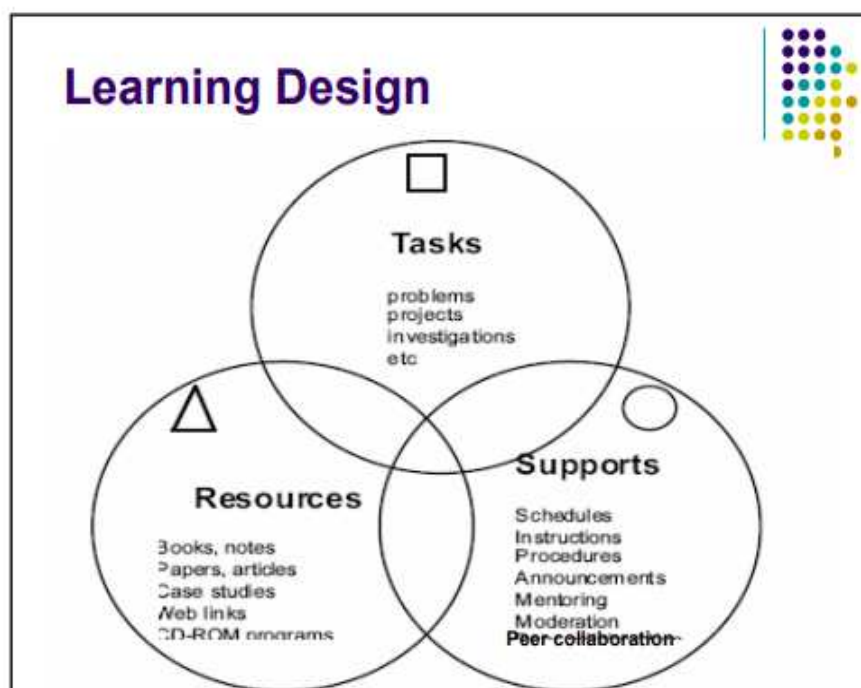
From being given to finding or creating

From fixed to options

From listening to doing

Designing a Blended course involves –

Designing learning activities, assessment, web environment, content to contribution



### Cost factor

We need to examine the issues of cost that need to be considered in adopting these new approaches.

### Sustainability

Research studies has shown that the blended course is sustainable. Blended learning incorporates face-to-face systems and technology focused on the Internet.

But any program that involves such two components can be called blended learning.

According to Allen et al., (2007), referred to as blended learning into 30% of the content of a course that should be delivered by it. In explaining the typical course, they presented the table below to categorizations and the quantities of the various learning and online learning elements environments for instruction.

Table 1: Type of Courses  
Allen, Seaman, and Garrett, 2007

Proportion of Content Delivered Online	Type of Course	Typical Description
0%	Traditional	Course with no online technology used—content is delivered in writing or orally.
1 to 29%	Web Facilitated	Course, which uses Web-based technology to facilitate what is essentially a face-to-face course. Uses a course management system (CMS) or Web pages to post the syllabus and assignments, for example.
30 to 79%	Blended	Course that blends online and face-to-face delivery. Substantial proportion of the content is delivered online, typically uses online discussions, and typically has some face-to-face meetings.
≥ 80%	Online	A course where most or all of the content is delivered online. Typically have no face-to-face meetings.

### Blended learning advantages

1. individually tailored awareness of learning,
2. offers more guidance and assistance for the learning,
3. facilitates and promotes autonomous and interactive learning,
4. improves learning participation of students
5. incorporates a range of modes of learning,
6. offers a place beyond the classroom
7. provides the versatile capability of studies anytime, anywhere, to fulfill the demands of learners,
8. enables students to improve critical and useful learning abilities of the twenty-first century
9. Provide a safer learning environment..
10. Increase student engagement.



11. Flipping the classroom improves comprehension.
12. Students have more autonomy over their learning.
13. Efficient use of instructor time.
14. Gather learner data for better insights.
15. Access and enroll more students.

As blended learning brings the best of face-to-face learning and computer-mediated instruction offers many advantages.

C.Bon Curtis J. Bonk, Charles R. Grahamk (2013) described basic advantage of blended learning such as:-

Blended learning provides cost-effectiveness and a chance to reach a large, internationally distributed audience in a brief amount of time. During the practical point, travel costs can be spent by transferring part of face-to-face learning to blended learning.

### **Conclusion**

Involving the learners independently may be beneficial.

Furthermore, the incorporation of the online aspect in blended learning also makes it possible to use of real media systems (through forums, chats, emails, etc.) and offers real learning content to students.

Therefore, a student might attend classes in a real-world classroom setting and then supplement the lesson plan by completing online multimedia coursework. It is also been suggested that students who complete online coursework followed by interactive, face-to-face class activities have richer educational experiences.

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