Challenges in Implementation of Blended learning in online mode of Higher Education: An Empirical Study from Consumers' Perspective

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Abstract
Implementing blended learning in online higher education in India is a complicated and challenging task. The pervasive digital divide, which is especially visible in rural regions with limited internet connectivity, is one of the most pressing of these concerns. Bridging this gap necessitates novel solutions that enable fair access to online resources for all students, regardless of geographic location or financial condition. Furthermore, teacher readiness to effectively understand and use technology in their instructional practices is a big barrier. Comprehensive training programmes must be created to provide educators with the skills and resources they need to properly offer blended learning experiences. Maintaining student engagement and motivation in virtual learning environments adds to the complexity of implementation. Addressing concerns about the quality of online education and implementing strong assessment systems are critical to guaranteeing the efficacy and integrity of blended learning programmes. As a result, addressing these difficulties necessitates a comprehensive approach that includes technology infrastructure enhancements, faculty development programmes, and an organisation commitment to creating an inclusive and engaging learning environment for all students. Study survey was conducted among 239 consumers from higher education to know the factors that determine different challenges in "implementation of blended learning" in online mode of higher education and found that Technical Support and Assistance, Engagement and Motivation, Access to Technology and Digital Literacy Skills are the factors that determine different challenges in "implementation of blended learning" in online mode of higher education.

Keywords: Digital Divide, Rural Connectivity, Teacher Training, Blended Learning, Student Engagement, Assessment Systems.

Introduction
Blended learning is challenging to add to India's online higher education system. Getting everyone online, especially in rural areas, requires unique solutions that make access fair. Key issues are making sure that faculty members know how to use technology and putting in place effective training programmes. Furthermore, keeping students interested in virtual learning settings is a big problem. The utmost importance is making sure of the standard of online education and creating strong ways to test students. It will take a thorough approach to solve these multi-sided problems, including improvements in technology, training for teachers, and a strong dedication to creating a welcoming and interesting learning space for all students. Despite the possible benefits, putting mixed learning into practice in India's online higher education system is not easy. Initial problems with infrastructure make implementation less successful. Technology infrastructure and reliable internet connections are still missing in many parts of India, which are needed for smooth online exchanges. This "digital divide" makes it harder for students from rural or remote areas to fully join in blended learning programmes (Bordoloi et al. 2021). Concerns about the availability of necessary hardware devices like laptops, tablets, or smartphones are still present for kids from low-income families, which makes the educational gap even bigger. Fixing these infrastructure problems will take a lot of money to be spent on increasing internet access, getting the right hardware, and teaching students and teachers how to use technology better.

Enhancing faculty readiness and skills is essential for a good implementation. Many teachers may not have the skills and training to successfully combine online and offline parts, even though blended learning offers flexibility and new ways to

teach. Switching from standard classroom-based instruction to a blended learning environment needs teachers to change how they teach, create digital content, and run activities and discussions online (Kumar et al., 2021). For faculty members, however, limited exposure to technology-enhanced teaching methods and a lack of professional development chances make it harder for them to fully utilise the benefits of blended learning. Faculty training programmes, mentorship programmes, and collaborative learning groups can help teachers become more skilled and confident in using blended learning methods.

Improving student involvement and motivation is one of the biggest problems with using blended learning in India's online higher education system. The change to remote learning during the COVID-19 pandemic has brought to light problems with student engagement, as some students may have trouble with self-directed learning and lack the self-discipline to actively join in online activities. Multiple learning styles and students' varying levels of digital literacy make it harder to create successful blended learning experiences that meet the needs of all students (Faustino & Kaur, 2021). To deal with these issues, teachers need to use new ways of teaching, like co-operation, peer collaboration, and personalised learning pathways, to get students more interested and motivated in their blended learning settings. Providing ongoing support, comments, and incentives can also inspire students to take charge of their own learning and be involved in activities both online and off.

Literature Review

Using both online and blended learning together in higher education in India is a potential way to change the way people learn. Nawale (2022) indicates that blended learning could change the way higher education is done in India by combining standard classroom learning with activities that can be done online. One big problem, though, is making sure that everyone has equal access to digital tools and technology infrastructure. According to Sharma and Shree (2023), fair access to digital resources is important for mixed learning to work because it makes sure that all students have the same chances to learn from course materials and take part in online activities. In addition, the ways that students are tested and graded in blended learning settings need to be carefully thought through and changed. It's possible that traditional ways of grading won't work well with the different types of learning tasks that blended learning makes possible. It's very important to come up with good assessment methods that can correctly measure how much students have learned in blended learning settings. Blended learning helps students learn how to think critically, work with others, and use technology, so assessment methods should be made to see not only how well students know the material but also how well they have developed these skills. To make sure that evaluations are true and accurate, they need to be changed to fit the hybrid nature of blended learning.

One more problem is that "cultural and pedagogical shifts" need to happen in order for blended learning to work well in online settings. Why it's important to make sure that teachers are ready to use blended learning and that they have the skills they need to do so. "Faculty training and support are essential to facilitate the smooth transition to blended learning," asserts Anthony et al. (2022), "as it empowers educators to design and deliver engaging online content while maintaining pedagogical rigour." Islam et al. (2020) came up with a complete model for promoting student-centered mixed learning. This model stresses how important it is for students to be involved and take charge of their own learning. Their plan supports a balanced approach that combines in-person and online activities in order to give students a more interesting and active place to learn. Combining traditional teaching methods with new online tools and resources, teachers can meet the needs of students with a wide range of learning styles and tastes. This helps students understand and remember course material better.

As Dangwal pointed out, one big problem is how to close the "digital divide" among students. It pointed out the "pervasive disparities" in access to technology and internet connection between people of different socioeconomic backgrounds, which make it very hard to use blended learning effectively. Some students may be left behind if they don't have equal access to digital resources and infrastructure. They might not be able to fully participate in online learning activities and tools. Bhadri and Patil (2022) argue that mixed learning is a good way to teach and learn online because it can make students more interested in learning and help them do better in school. But staff members who are used to traditional classroom methods might be against adding technology to traditional ways of teaching. To solve this problem, faculty development programmes are very important because they give teachers the knowledge and skills they need to create and run effective mixed learning experiences.

From the point of view of Indian teachers, Virani et al. (2023) explained how "massive open online courses (MOOCs)" are used for blended learning. They gave us useful information about the problems that come up when MOOCs are used in regular classrooms. Even though MOOCs give students access to a huge number of online courses and tools, putting them together in blended learning settings needs a lot of planning and thought. One major problem that has been found has to do with the things that make students interested in online material in blended learning. Dwivedi et al. (2019) went into more detail about these factors, showing how hard it is to get students to connect and participate actively in online learning environments. Some things, like "technological constraints," "lack of motivation," and "unfamiliarity with online platforms," can make it hard for students to pay attention in class. To deal with these problems, we need a multifaceted approach that includes using technology to help, coming up with new ways to teach, and coming up with ways to motivate students that are specific to their needs and tastes.

Also, the change to "experiential classrooms" through blended learning brings new problems for India's higher education institutions. Nayar and Koul (2020) looked into how blended learning could be used as a way to promote "experiential learning," which stresses the significance of real-life experiences and uses in the learning process. As a result, adding experience elements to online learning requires creative lesson planning and the use of immersive technologies. In addition, giving students chances to learn by doing outside of school involves working with business partners to create strong internship and apprenticeship programmes. To solve these problems, we need to change the way we teach and focus on using blended learning to help students develop their imagination, critical thinking, and problem-solving skills.

Putting "blended learning" into India's online higher education system comes with a number of problems that need to be solved before it can work well. The lack of facilities is a big problem. In spite of progress in technology, many parts of India still can't connect to the internet or get to the digital tools they need. According to Sarkar (2023), this limitation makes it harder to offer online content and interact with others without any problems. This makes blended learning programmes less useful. Adapting the way of teaching is another problem. Faculty members need the right kind of training and help to learn how to use technology well and make interesting online material that goes along with their in-person lessons. Also, we need to make sure that the ways we test students are compatible with the mixed learning method so that we can accurately measure how much they have learned (Kumar & Selva Ganesh, 2022). Also, India's wide range of national and socioeconomic backgrounds makes it hard to use blended learning. Students come from different places, speak different languages, and learn in different ways, so the way information is delivered and interactions happen need to be customized. When making blended learning classes, it's important to think about accessibility and inclusion so that all students can take part and learn from the experience (Aisha & Ratra, 2020).

Objective
1. To know the factors that determine different challenges in "implementation of blended learning" in online mode of higher education.

Methodology
239 consumers from higher education were selected to know the factors that determine different challenges in "implementation of blended learning" in online mode of higher education. "Random sampling method" and "Factor Analysis" were used to collect and analyze the data.

Findings
Total 239 people were surveyed in which male are 59.4% and 40.6% are female. Among them 33.9% are below 20 years of age, 39.7% are between 20-24 years of age and rest 27.2% are above 24 years of age. 31.8% are from rural areas, 40.6% from semi urban area and rest 27.6% from other areas of the country.

Table 1 General Details

"Variables"	"Respondents"	"Percentage"
Gender		
Male	142	59.4

Female	97	40.6
Total	**239**	**100**
Age (years)		
Below 20	81	33.9
20-24	95	39.7
Above 24	65	27.2
Total	**239**	**100**
Area		
Rural	76	31.8
Semi urban	97	40.6
Other	66	27.6
Total	**239**	**100**

Table 2 "KMO and Bartlett's Test"

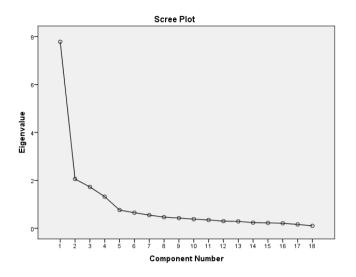| "Kaiser-Meyer-Olkin Measure of Sampling Adequacy"		.875
"Bartlett's Test of Sphericity"	Approx. Chi-Square	2858.996
	df	153
	Sig.	.000

In the table above KMO value is 0.875 and the "Barlett's Test of Sphericity" is significant.

"Table 3 Total Variance Explained"

"Component"	"Initial Eigen values"			"Rotation Sums of Squared Loadings"		
	"Total"	"% of Variance"	"Cumulative %"	"Total"	"% of Variance"	"Cumulative %"
1	7.785	43.249	43.249	3.813	**21.184**	21.184
2	2.056	11.424	54.674	3.383	**18.793**	39.977
3	1.727	9.596	64.270	2.939	**16.328**	56.305
4	1.319	7.330	71.599	2.753	**15.295**	**71.599**
5	.761	4.230	75.830			
6	.651	3.617	79.446			
7	.551	3.058	82.505			
8	.466	2.588	85.092			
9	.427	2.373	87.465			
10	.383	2.127	89.592			
11	.349	1.939	91.531			
12	.299	1.659	93.189			
13	.289	1.608	94.797			
14	.236	1.310	96.107			
15	.227	1.260	97.366			
16	.210	1.165	98.532			
17	.162	.898	99.429			
18	.103	.571	100.000			

The "principal component analysis" method was applied to extract the factors and it was found that 18 variables form 4 Factors. The factors explained the variance of 21.184%, 18.793%, 16.328% and 15.295% respectively. The total variance explained is 71.599%.

Scree Plot

"Table 4 Rotated Component Matrix"

"S. No."	"Statements"	"Factor Loading"	"Factor Reliability"
	Technical Support and Assistance		**.891**
1	Difficulty in accessing timely technical support when issues arise	.850	
2	Lack of User-Friendly Resources for troubleshoot technical problems	.834	
3	Long response times	.799	
4	Inexperienced or inadequately trained support staff	.776	
5	Language barriers pose additional challenges when seeking technical support	.603	
	Engagement and Motivation		**.895**
6	It is tough to maintain student engagement and motivation in a blended learning environment	.818	
7	Lack of face-to-face interaction with instructors and peers leads to isolation and disengaged situation	.781	
8	Lack of social interaction and sense of community in online courses	.770	
9	It is tough to stay focused and manage time effectively	.749	
10	Lack the self-discipline and self-motivation	.742	
	Access to Technology		**.843**
11	Insufficient infrastructure to access necessary technology	.883	
12	Inadequate power supply and internet connectivity	.831	
13	Cost of internet service prohibitive for those with limited financial resources	.785	
14	Challenges related to device compatibility	.605	
	Digital Literacy Skills		**.819**
15	Lack of digital literacy skills required to navigate online platforms effectively	.769	
16	Difficulty in utilizing digital tools	.768	
17	Facing problem to engage with course materials and participate in online discussions and activities	.736	
18	Lack of critical thinking skills to evaluate the credibility and reliability of sources	.669	

Table 4 is showing different factors that determine different challenges in "implementation of blended learning" in online mode of higher education. First factor is Technical Support and Assistance which includes the variables like difficulty in accessing timely technical support when issues arise, Lack of User-Friendly Resources for troubleshoot technical problems, long response times, Inexperienced or inadequately trained support staff and Language barriers pose additional challenges when seeking technical support. Second factor namely Engagement and Motivation includes the variables like it is tough to maintain student engagement and motivation in a blended learning environment, Lack of face-to-face interaction with instructors and peers leads to isolation and disengaged situation, Lack of social interaction and sense of community in online courses, It is tough to stay focused and manage time effectively and Lack the self-discipline and self-motivation. Third factor is Access to Technology and its associated variables are Insufficient infrastructure to access necessary technology, Inadequate power supply and internet connectivity, Cost of internet service prohibitive for those with limited financial resources and Challenges related to device compatibility. Fourth factor is Digital Literacy Skills which includes the variables like Lack of digital literacy skills required to navigate online platforms effectively, difficulty in utilizing digital tools, facing problem to engage with course materials and participate in online discussions and activities and Lack of critical thinking skills to evaluate the credibility and reliability of sources.

"Table 5 Reliability Statistics"

"Cronbach's Alpha"	"N of Items"
.920	18

The reliability for 4 constructs with total of eighteen elements is 0.920.

Conclusion

In conclusion, the introduction of blended learning into India's online higher education system comes with a number of difficulties, but it also holds great promise for the nation's educational future. First off, there are still gaps in technology and internet access between different areas and socioeconomic groups, which is known as the "digital divide." In order to close this gap, the government and educational institutions must work together to give marginalised populations the infrastructure and assistance they need. Second, for blended learning to be successfully implemented, faculty training and preparedness are essential. It's possible that many teachers lack the pedagogical knowledge and abilities needed to successfully incorporate internet materials and tools into their lesson plans. This issue may be resolved and teachers given the tools they need to use technology to improve student learning through ongoing professional development programmes. Furthermore, it is impossible to ignore the importance of standardisation and quality control in online learning. The credibility and integrity of higher education institutions depend on online courses adhering to strict accreditation requirements and academic standards. Additionally, the motivation and involvement of students are critical components of blended learning programmes success. Creating personalised support, encouraging a feeling of community and collaboration among learners, and creating dynamic and engaging online content are all crucial tactics for raising student satisfaction and retention rates. Notwithstanding these difficulties, blended learning has a lot of potential advantages for higher education, including more accessibility, flexibility, and scalability for educational opportunities. Through cooperative efforts and creative solutions to the aforementioned problems, India can leverage the transformative potential of blended learning to create a more resilient, fair, and inclusive education system fit for the twenty-first century.

The study was conducted to know the factors that determine different challenges in "implementation of blended learning" in online mode of higher education and found that Technical Support and Assistance, Engagement and Motivation, Access to Technology and Digital Literacy Skills are the factors that determine different challenges in "implementation of blended learning" in online mode of higher education.

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