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Blended Learning *vs.* E-learning: Determining the Best Mode of Education from the Perspective of the Learners

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ABSTRACT

The study aims to determine students' perceptions regarding the blended mode of learning in the Post-COVID era of Aligarh Muslim University. An online questionnaire was designed (Google form) with the help of previous studies and forwarded the web link through text messaging, email, WhatsApp, and Facebook. In total, 291 participants (undergraduates, postgraduates, and research scholars) filled out the online questionnaire. The result shows that the blended mode of learning is well accepted by the students, but when it comes to practical classes, this mode surely does not suffice. When it comes to the attitude of the students towards the blended mode of learning, the results suggest that most of the students are comfortable. Further, the blended mode comes with the complexities of e-learning and technical issues like poor internet connectivity, technical problems, limited internet packs, unstructured reading materials, etc., causing many difficulties in the overall learning process. This is the first study that assesses the students' perceptions towards the blended mode of learning in Aligarh Muslim University. The findings may be useful in developing new strategies for improving the learning environment in any academic institution.

Keywords: Blended learning; Traditional learning; E-learning; Information communication technology; Aligarh Muslim University

1. INTRODUCTION

Information and communication technology (ICT) has penetrated deeply into every aspect of human civilisation today, whether economic, social, political, geographic, or academic. In the field of education too, the application of ICT has positive effects on the learning process. As a result of this effect, new paradigms for the teaching-learning process have emerged, namely electronic learning, remote learning (distance), and blended learning[1]. Traditional face-to-face learning methods are changing in favour of more open education employing contemporary tools and technology as a direct result of the use and impact of ICT[2]. Due to the disadvantages of electronic learning, such as the way it interferes with social interaction and limits face-to-face communication, a new learning environment has arisen. E-learning and traditional learning environments combine together to give rise of a new learning methods, termed blended learning[3]. According to Neumeier,[4] blended learning is a single teaching and learning environment which combines in-person instruction with computer-assisted learning. Garrison and Kanuka[5] define it as "a thoughtful integration of classroom face-to-face learning experiences with online experiences". Over the years, the integration of technology into face-to-face instruction has generated a great deal of interest and opened up several research opportunities. Due to its perception as being effective in delivering flexible, timely, and real-time learning, blended learning is currently thought to be the most effective and most widely used style of instruction by educational institutions[6]. Undoubtedly, one of the key features of the educational process today is blended learning, as it combines traditional and online learning, which results in numerous benefits for learners.

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2. BLENDED LEARNING

According to the literature on blended learning, it has been observed that there is no single universal definition of it. Delialioglu and Yildirim[7] asserted that integrating ICT resources into academic courses strategically and methodically introduces a new way to approach instructional aims. There are several names for this instructional method or teaching approach like blended learning, mediated learning, and hybrid instruction. While in the words of[8], it is an amalgamation of instructional modalities, particularly in-person (face-to-face) and online learning. Garrison and Kanuka[5] state that blended learning is the merger of various

instruction delivery methods, pedagogical frameworks, and learning philosophies that take place in a socially engaging learning environment. Some scholars also accept blended learning systems that combine in-person training with computer-mediated instruction.[9-10] The concept of blended learning was developed as a means for institutions to progressively transition from conventional face-to-face procedures to an "E-intensive" approach by using information and communication technologies (ICT) as part of the delivery[11]. And it has been demonstrated that combining educational resources with online interventions is preferable to both virtual and conventional face-to-face modalities of training.[12]

3. STATEMENT OF THE PROBLEM

Education is one of many areas that are impacted by information and communication technology (ICT). It has given educators access to quick, modern, cost-effective, and reliable technologies. The evolution of education and training programmes over the past few years has increased the use of electronic learning, which has led to a shift towards blended learning techniques because they make learning more approachable, engaging, relevant, and adaptable. Many higher education institutions changed their teaching methods to incorporate blended learning due to the COVID-19 pandemic. A new approach to learning and teaching methods was introduced due to COVID-19, with a concentration on disseminating information in formats that are more and more digitally oriented. Due to the necessity of meeting students' requirements, some digital technologies were quickly adopted inside pre-existing educational frameworks. Blended learning increases the possibilities for more high-quality and extensive interpersonal communication in a learning environment. Therefore, in light of the importance of blended learning discussed above, the present study will assess and evaluate students' perspectives regarding the blended mode of learning.

4. REVIEW OF RELATED LITERATURE

In the study of Kasraie and Alahmed[13], the authors believed that the possibility that students will continue their learning and interactions outside of the face-to-face classroom is increased by their digital literacy. Because blended learning is more advantageous and efficient than traditional learning. Yuen[14] investigated the application of ICT in blended learning in higher education and highlighted the experiences of teachers and students. The study revealed some suggested teaching strategies from the case studies, such as online discussion, online learning resources, and course management improvement.

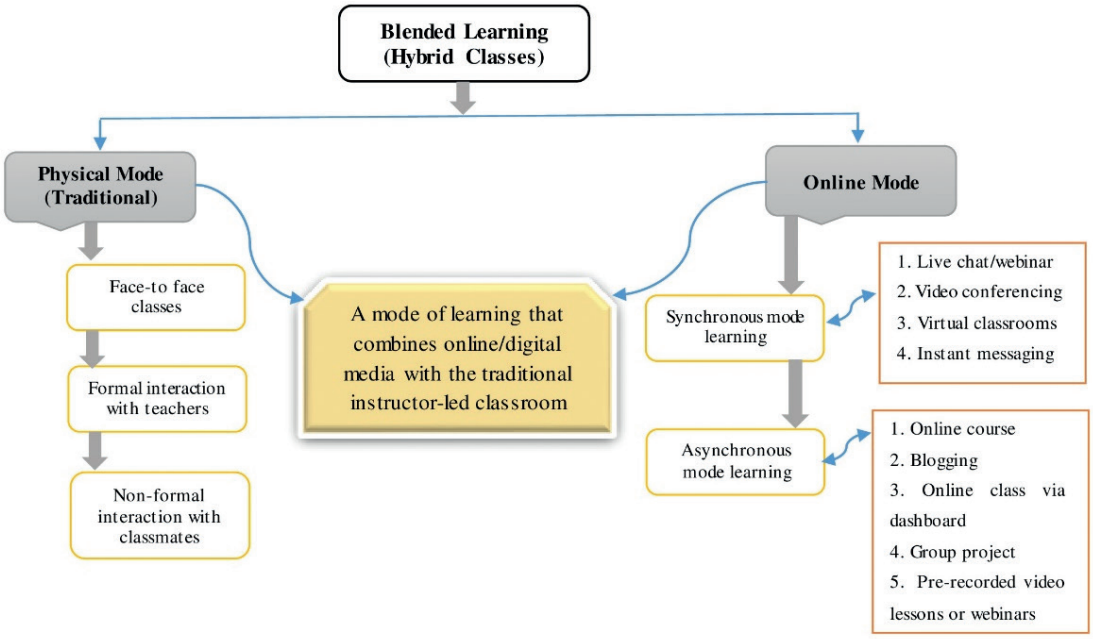

Figure 1. Concept of blended mode of learning.

These techniques are regarded as academic innovations that provide empirical evidence to shed light on blended learning in higher education.

The study of Liand Wang[15] is to identify the most effective learning outcome domains and summarise the overall benefits of blended learning on Kindergarten through Grade 12 (K–12) student's performance. The study finds that the usage of blended learning in K–12 students is expanding and is also a more useful strategy in comparison to traditional face-to-face learning. Moreover, it has a considerable positive impact on students' general performance. Finlay, *et al.*[16] highlighted how UK students evaluated the differences between a blended learning method and virtual learning during a global pandemic. According to the study's findings, Edge Hill University sport and exercise science students preferred blended learning over virtual learning. Furthermore, the study also indicated that to promote social interaction and maintain

consistent use of learning technology throughout the sub-disciplines of sport and exercise science, students must be actively engaged in the online learning environment.

Kang and Kim[17] conducted a study on undergraduate nursing students at a university in South Korea to evaluate the advantages of blended learning over traditional learning. In this study, two groups were formed: one is team-based learning in a flipped classroom (blended learning), called the experimental group, and the another one is the traditional lecture-based classroom, which is called the control group. The outcomes demonstrated that, when compared to traditional lectures, blended learning instructional approaches improved students' knowledge, problem-solving skills, and learning satisfaction in the public healthcare course. Bordoloi, *et al.*[18] explored how blended learning is used by instructors and students, as well as what the difficulties are in delivering it during and after a COVID pandemic. The authors revealed that blended learning could be the next way of providing education in today's era. During the COVID-19 shutdown, many open educational materials, massive open online courses, social media, and meeting apps were used, which has helped in providing the information to the respective learners. However, the authors also stated that the ability to start online and remote instruction during a crisis period might be an advantage for developed nations but could not be accurate for other underdeveloped nations like India. Because of the issue of the digital divide, not everyone has access to or feels at ease using new tools and technology. Shorey, *et al.*[19] found that blended learning is utilised to modify the communication module for undergraduates in nursing courses, which results an increment in their satisfaction level. The student's thoughts on acquiring communication skills were positive, and they also received excellent marks on the scales measuring their satisfaction with blended learning, communication skills, and attitude.

Zainuddin and Keumala[20] sought to investigate how a blended learning paradigm might be developed in higher education institutions in Indonesia and revealed that the alternative approach of blended learning, which combines conventional methods with methods based on multimedia technology, is very pertinent to the current digital world. Lalima and Dangwal[21] examined how blended learning approaches are used in India's educational system and the best ways to incorporate them into the classroom. According to the study, teachers with a scientific mindset who are well-trained and motivated are essential for the implementation of blended learning. In addition to this, however, for the development of the proper attitudes, which can be changed by students, instructors are the most crucial factor that must be taken into account while implementing blended learning. It could be required to know the benefits of blended learning in order to foster the correct mentality for its successful implementation. In the study of Hein, *et al.*[22], blended learning has a stronger relationship with students who study science, technology, engineering, and mathematics (STEM) subjects than standard classroom instruction does. The study also revealed that if blended learning is to result in high learning quality relative to other modes of education delivery, instructors in non-STEM disciplines should pay closer attention to fostering constructive and critical online discussions.

James[23] stated that students can benefit from quick personalised feedback and work both independently and in groups when learning and teaching with ICT. Furthermore, this study argues that integrating ICT and cutting-edge experiments with blended learning could be used to good effect in achieving desired learning outcomes and improving productivity, interest in teaching and learning. Tosun[24] investigated the results of the blended learning method in vocabulary instruction and student's impressions of the mixed learning strategy for vocabulary learning. The study's findings do not agree with many earlier studies, which found that blended learning training has several benefits over face-to-face training, as this method failed to raise the student's vocabulary proficiency. However, despite the proposed blended learning strategy for teaching vocabulary to the conventional classroom-based approach, students did not want to spend time outside of class studying new vocabulary words due to a lack of motivation. Furthermore, the study also suggested that if digital tools are chosen in accordance with students' requirements and interests, blended online vocabulary education may be successful in assisting learners in improving their vocabulary knowledge.

5. OBJECTIVES OF THE STUDY

- To examine which mode of learning students prefer most;
- To assess the level of digital literacy skills among the students;
- To examine the perceptions and attitudes of students regarding the blended mode of learning; and
- To determine the constraints encountered by the students when adopting a blended mode of learning.

6. METHODOLOGY

In order to attain the objectives of the present study, researchers conducted a quantitative study based on the survey method by using an online questionnaire (Google form) as a tool for data collection. The questionnaire was prepared based on previous studies conducted by many researchers (Finlay, *et al.,* 2022; Lalima and Dangwal, 2017; Ja'ashan, 2015).[16,21,25] A pre-test was also conducted among 15 students to assess the validity of the questionnaire. The questionnaire was divided into five major sections, i.e., demographic characteristics, mode of learning, digital literacy skills, attitude towards the blended mode of learning, and problems encountered by the students.

The Aligarh Muslim University has taken as a sample. The University is considered one of the well-renowned institutions in the educational and social history of modern India. The university was set up by an act of the Indian Legislative Council in 1920 and got the status of Central University in that year. It offers more than 300 courses in various educational fields,

along with 13 faculties and 117 departments (Aligarh Muslim University[26]. The target population of this study was to cover undergraduate, postgraduate, and research scholars from different faculties.

The web link to the questionnaire (https://forms.gle/RyAUp7NGyYZBkpGe8) was shared via email, text messaging, WhatsApp and Facebook. The web link to the questionnaire was opened on July10th 2022, and disabled after 15 days of circulation. In total, 291 participants positively responded to this survey. To know the level of digital literacy skills and attitudes towards the blended mode of learning, a five-point Likert scale was used ranging from 1-*"Not confident at all*" to 5-"*Completely confident*" and 1-"*Strongly disagree*" to 5-"*Strongly agree*". The reliability of the questionnaire was authenticated by reliability analysis using SPSS version 23 with subscales.Cronbach's alpha is a metric used to assess the consistency of a set of scales, such as "level of digital literacy" (=.839) and "attitude toward blended mode of learning" (=.932). However, the values for Cronbach's alpha of 0.7 to 0.10 are considered highly acceptable, as suggested in the earlier study by Nazim, *et al.*[27]

Table 1 shows the demographic characteristics of the respondents. The analysed data shows that more than seventy percent of the respondents were male (n= 211, 72.5 %) while only 27.5 % of them were female. The results show that most of the respondents (n =163, 56.0 %) were under 21 to 25 years old. The second largest group of respondents (n=95, 32.6 %) belonged to the age group of 26 to 30 years. Out of 291 respondents, the majority are pursuing postgraduate courses (n=124, 42.6 %), followed by 95 (32.6 %) of them are research scholars and 72 (24.7 %) of them are undergraduate students.

Table 1. Demographic characteristics of the respondents

Demographic variables		No. of respondents (*n*=291)	Percentage
By gender	Male	211	72.5
	Female	80	27.5
By age	15-20 Years	10	3.4
	21-25 Years	163	56.0
	26-30 Years	95	32.6
	31-35 Years	18	6.2
	35-40 Years	5	1.7
By Course	Undergraduate	72	24.7
	Postgraduate	124	42.6
	Research Scholar	95	32.6

7. RESULTS

7.1 Mode of Learning

Both modes of learning have quite different approaches and offer different opportunities to the learners. Blended learning, often referred to as hybrid learning, blends traditional classroom-based lecture techniques with online educational resources, while e-learning is a formalised teaching-based learning system that makes use of electronic resources. While education can take place in or out of the classroom, the use of computerised technology is the most crucial aspect of e-learning. Examining the mode of learning preferred by the students is the first objective of this study.

The data shown in Table 2 indicates that the majority of the students (54.3 %) support blended mode of learning, while 38.5 % of the respondents support traditional mode of learning. Only 7.2 % of the respondents showed an interest in the online mode. This indicates that the online mode of learning is rejected by the majority of the respondents.

When asked about the mode of examination preferred by the respondents, the majority of them (52.9 %) supported the hand-written mode. 26.8 % of respondents support both the hand-written and online modes. Online mode was preferred by 20.3 % of the respondents.

For homework, the hand-written mode was preferred by the respondents over the online mode, and while being asked to respond to their preferred mode for practical classes, 70.7 % of the respondents supported the traditional mode.

7.2 Level of Digital Literacy Skills

The results of Table 2 indicate that the online mode is less preferred by the majority of the students. This can be possible due to the intricacies of handling digital technologies as well as the digital devices required for the online mode of learning. Digital literacy skills are very much needed for online education. Table 3 shows the skills of the students.

When asked if the respondents were confident using various electronic devices as well as various online platforms like Google Meet, Zoom, Cisco Webex, etc., majority of them (69.4 % and 54.6 %, respectively) responded as *Quite Confident.* Even though the result shows that the majority of the students are confident in handling digital devices and technologies, significantly they are not entirely confident, which leads to the fact that there are still some dilemmas and confusion regarding technological aspects among the students.

Around 42.2 % and 36.1 % of the respondents are *somewhat confident* in uploading assignments on the Google Classroom platform and in searching and downloading Open Educational Resources, respectively. This result confirms that the students are certainly facing problems in uploading assignments and in browsing the e-resources.

In the case of working on Microsoft Office, 30.6 %

Table 2. Mode of learning preferred by the respondents

S. No.	Questions		No. of respondents (*n*=291)	Percentage
1.	Which mode of educational learning do you like most?	Traditional mode	112	38.5
		Online mode	21	7.2
		Blended mode	158	54.3
2.	Which mode of examination do you like most?	Hand-written	154	52.9
		Online mode	59	20.3
		Both	78	26.8
3.	Which type of format do you like most for homework?	Hand-written	200	68.7
		Online	91	31.3
4.	Which mode do you prefer for practical classes?	Traditional mode	206	70.7
		Online mode	18	9.3
		Blended mode	67	23.0

Table 3. Digital literacy skills among the students

S. No.	Statements	CC	QC	SWC	SC	NCAA
1.	I feel confident using various electronic devices	63 (21.6%)	202 (69.4%)	26 (8.9%)	-	-
2.	I feel confident using various online platforms like Google Meet, Zoom, Cisco Webex, etc.	60 (20.6%)	159 (54.6%)	45 (15.5%)	27 (9.3%)	-
3.	I feel confident uploading assignments on Google classroom	71 (24.4%)	58 (19.9%)	123 (42.2%)	39 (13.4%)	-
4.	I feel confident searching and downloading Open Educational Resources.	45 (15.5%)	80 (27.5%)	105 (36.1%)	61 (21.0%)	-
5.	I feel confident working in MS Office	59 (20.3%)	69 (23.7%)	89 (30.6%)	42 (14.4%)	32 (10.9%)
6.	I feel confident using email and other virtual communication tools	90 (30.9%)	90 (30.9%)	59 (20.3%)	52 (17.9%)	-
7.	I feel confident to access the remote access facility offered by the Maulana Azad Library	108 (37.1%)	68 (23.4%)	53 (18.2%)	32 (11.0%)	30 (10.3%)
8.	I feel confident using social networking sites for getting up-to-date information from peers	149 (51.2%)	98 (33.7%)	44 (15.1%)	-	-

Scale: NCAA=Not Confident At All, SC= Slightly Confident, SWC=Somewhat Confident, QC=Quite Confident, CC=Completely Confident

of the respondents are also *somewhat confident,* while in the case of using email and other virtual communication tools, the majority of the students (30.9 %) respondents are *completely confident* as well as *quite confident.* Apparently, MS Office requires skills and knowledge to operate, which the students lack. On the other hand, handling email and other communication tools is much easier to comprehend; hence, the result shows that most students are fluent at it.

When asked if they are confident in using the Maulana Azad Library's remote access service, the majority of respondents (37.1 %) said they are *completely confident*. It is worth mentioning that MAL frequently organises training programs for the students on how to use their remote access facility and other e-resources. The results can vouch for that.

Around 51 % of the respondents are *completely confident* in using social networking sites for getting up-to-date information from peers. This refers to the fact that social networking sites have become a great medium of communication as well as knowledge exchange for students.

7.3 Attitude Towards Blended Mode of Learning

The blended mode of learning is adopted by most educational institutions in the Post-COVID era because it is a customisable and flexible method that offers both traditional and e-learning facilities. Certainly, the blended mode has given so many opportunities in these desperate times of COVID, but what about the student's perception of it? The results shown in Table 4 would help us to understand the answer.

When asked multiple questions regarding blended learning and all the facilities it provides, the responses were quite mixed. The results show that when asked about the effectiveness of blended learning over traditional learning, the majority of the students (25.1 %) *strongly agree.* 32.3 % of the respondents *agree* that the content delivery process is very effective in the blended learning mode. However, 30.9 % of respondents were unsure whether blended mode provided them with a broader range of learning opportunities and whether blended mode is less stressful than traditional techniques. When asked about the utilisation of time, 26.1 % responds "*uncertain" while* 25.8 % responded "*strongly agree".* Therefore, we can say that regarding the utilisation of time, there is a mixed reaction. Yet again, when asked about the fact that whether in blended learning mode, collaboration and interactivity are present in a better way or not, the majority (28.5 %) of the respondents were *uncertain,* but in the case of the approach of blended mode in supporting flexible learning, most of the respondents (29.2 %) *strongly agree.* In answer to the statement "Blended learning approach is very effective to achieve maximum learning", most of the respondents (25.4 %) were *uncertain. However*, 36.1 % of the respondents *strongly agree* with the

Table 4. Attitude towards blended mode of learning

S. No.	Statements	SA	A	U	D	SD
1.	I believed that blended learning is more effective than the traditional classroom	73 (25.1%)	58 (19.9%)	61 (21.0%)	55 (18.9%)	44 (15.1%)
2.	I believed that content delivery process is very effective in blended learning mode	65 (22.3%)	94 (32.3%)	60 (20.6%)	45 (15.5%)	27 (9.3%)
3.	I believed that blended mode of learning provides the better scope of learning engagement activities	58 (19.9%)	71 (24.4%)	90 (30.9%)	39 (13.4%)	33 (11.3%)
4.	I believed that blended learning is less stressful than traditional classroom	54 (18.6%)	59 (20.3%)	90 (30.9%)	44 (15.1%)	44 (15.1%)
5.	I believed that blended learning helps in effective utilization of time	75 (25.8%)	61 (21.0%)	76 (26.1%)	43 (14.8%)	36 (12.4%)
6.	I believed that in blended learning mode, collaboration and interactivity is presence in a better way	49 (16.8%)	70 (24.1%)	83 (28.5%)	63 (21.6%)	26 (8.9%)
7.	I believed that blended learning approach supports flexibility in learning which interrupt learner's progress	85 (29.2%)	73 (25.1%)	46 (15.8%)	50 (17.2%)	37 (12.7%)
8.	I believed that blended learning approach is very effective to achieve maximum learning	69 (23.7%)	70 (24.1%)	74 (25.4%)	52 (17.9%)	26 (8.9%)
9.	I believed that blended learning gives us access to class materials at anytime from anywhere	105 (36.1%)	80 (27.5%)	61 (21.0%)	30 (10.3%)	15 (5.2%)
10.	I believed that blended learning activities increase student's satisfaction level	71 (24.4%)	68 (23.4%)	81 (27.8%)	36 (12.4%)	35 (12.0%)

Scale: SA=Strongly Agree, A=Agree, U=Uncertain, D=Disagree, SD=Strongly Disagree

statement "Blended learning gives us access to class materials at anytime from anywhere". In terms of the students' satisfaction levels, most of the respondents (27.8 %) were again *uncertain.*

7.4 Overall Perception Regarding Blended Learning

Figure 2 shows the overall perception of the respondents regarding the blended mode of learning. From the figure, we can clearly state that the majority of the respondents (40 %) are comfortable withthe blended mode of learning, followed by 27 % of the respondents who are very comfortable. Significantly, only 2 % of respondents are very uncomfortable with the blended mode of learning.

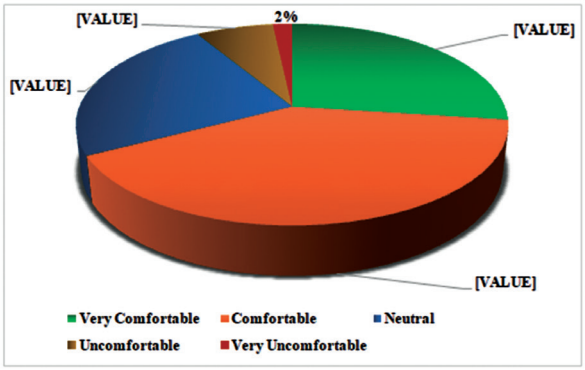

Figure 2. Overall perception regarding Blended learning.

7.5 Rank-wise Distribution of the Major Problems Faced by Students

E-learning as well as the blended mode of learning come with many technological complexities. Students were not accustomed to any of these learning methods prior to the COVID-19 pandemic. In the Post-COVID era, the blended mode is hugely used by most of the educational institutions in the Indian subcontinent.Even if blended mode is dynamic, it still has a lot of issues. Table 5 lists and identifies the major problems encountered by students in blended mode.

Table 5. Problems faced by the students in adopting blended mode

S. No.	Items	Responses (n= 291)	Percentage	Rank
1.	Poor Internet connectivity	164	56.3	1
2.	Technical problem	160	54.9	2
3.	It makes us socially isolated	157	53.9	3
4.	Limited data	128	43.9	4
5.	Reading materials are not well organized	116	39.8	5
6.	Teachers do not respond quickly	107	36.7	6
7.	The instructor isn't on time for all activities	102	35.0	7
8.	Inadequate training	89	30.5	8
9.	Insufficient e-resources	84	28.8	9
10.	Data packs are costly	76	26.1	10

Poor internet connectivity tops the listas the major problem faced by students. This problem is more evident in the rural regions of India. Technical problems rank secondin the table.As previously stated, online teaching necessitates technical knowledge, and not everyone is comfortable with digital technologies. 53.9 % of the respondents stated that this mode of learning made them socially isolated, and this is due to the prolonged hours of online classes.Limited internet data is a problem for 43.9 % of students. Online classes are prone to consume a huge amount of data, and thus it is a genuine problem. It is worthy to be pointed out that 26.1 % of the students also stated that internetpacks are costly, indicating it is also a problem faced by them. Apart from these, there are also many other problems, as stated by the students, like unstructured reading materials, teachers' lack of response and punctuality, inadequate training, and insufficient e-resources.

8. CONCLUSIONS

COVID-19 and its lingering effects on education are beyond any comprehension. The shutdown of educational institutions and the emergence of e-learning has seriously disrupted education across the globe, and India is among the worst-hit nations in this regard. Recent data from some of the highest-income nations shows that the pandemic is contributing to learning deficits and rising inequality. However, in the Post-

COVID era, educational institutions are finally reopening, and many of the institutions have adopted the blended mode of learning process, which is nothing but the amalgamation of both traditional classroom learning and e-learning.

The results of the study suggest that when it comes to the learning mode, the majority of the students preferred the traditional mode over the blended mode especially in the case of practical classes and homework. The blended mode of learning also requires digital and technical skills. The results show that there are still some students who are not fluent in handling digital technologies. However, the majority of the students are completely confident in using social networking sites and other virtual communication tools. When it comes to the attitude of the students towards blended mode, the results suggest that most of the students are comfortable in blended mode. However, there are also some major difficulties faced by the students in this mode. The results show that poor internet connectivity, technical problems, limited internet pack, unorganised reading materials, teachers' lack of responses and punctuality, inadequate training, and insufficient e-resources are among the major problems faced by the students. Therefore, it is suggested to the university authorities to start a training programme on digital technologies and also provide sufficient facilities for the improvement of the learning environment in the university.

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