A CRITICAL ANALYSIS OF THE BLENDED LEARNING METHODOLOGY

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ABSTRACT
This research paper is an attempt to study and analyze the response of faculty and students towards Blended Research Method of teaching and learning. COVID 19 had posed a problem for face to face class room teaching. The various tools were available for virtual meetings. The same were modified for Blended Learning. Many educational institutions started teaching in blended format (hybrid format).
It is observed that there are mixed reactions from the respondents. Students have responded that even Blended Learning is ecofriendly, it may continue forever looking into the convenience and cost of operations. Some students felt that Blended Learning is not at par with Traditional Education though it provides flexibility in learning in today's fast paced life. The research also tries to understand the perception of faculty towards blended learning, the quality of student-faculty interaction and the learning engagement in blended learning.
Keywords: Blended Learning, Faculty, Students, Traditional classroom learning, Pedagogy

Introduction

Blended Learning came in to vogue during COVID 19 Pandemic. Working professionals / Students realized that they can save a lot of precious time by having virtual meetings / learning. Traditionally, students used to attend lectures in the classrooms physically only. Even though online arrangements were available students used to prefer attending classes in the class rooms. Very few students used to learn virtually but COVID 19 put restrictions on face to face meetings / sessions and whichled to growth of online education. 100 % online education started from COVID 19. Later on it was observed that 100% online does not give motivation to learners. Therefore, a mixed / combined method which is called as Blended Learning was introduced. It is certainly better than having 100% online education. In this case you can have both the formats of education, online and face to face education / learning. It is a hybrid method. It gives a free hand to learners to choose between online education and physical face to face education. Students can choose a best combination of the both.

In our institute, DES'S IMDR Pune we have started embedded six months' internship program from academic year 2021-22 wherein students are supposed to attend lectures for three hours during semester II and attend the internship post noon. In this case, students can attend lectures in blended format. They can attend lectures physically if they could afford to come to the Institute. In case a student is attending internship in faraway places he or she can attend classes in online mode. In certain cases, they have to mandatorily attend sessions offline for example mentoring sessions. It gives chance to students and teachers to continue learning and teaching at any place. If the faculty member is on leave, he / she can conduct a session online. It is really worth having blended format in such cases. In case of an institute, faculty members can take extra sessions online and save reference material in soft copy format. Nowadays we use Microsoft teams' software to conduct blended classes and also provide notes online. We can accept the assignments online and can be access tem from any place. It is really a wonderful tool.Blended Learning certainly saves a lot of time, energy and money provided users use them properly. Keeping these things in mind we decided to analyse the impact of Blended Learning method on Students and Faculty Members.

Literature Review

(Heick, 2010)wrote that Blended Learning as the name suggests is an approach to learning which combineface to face and online learning experience. Ideally, both online and offline learning have their own strengths and when used in combination will complement the other. Heick wrote that it is difficult to define hybrid or blended learningas there are varied opinions on the subject. The Sloan Consortium defined hybrid courses as those that "integrate online with traditional face-to-face class activities in a planned, pedagogically valuable

manner." Many of the educators probably disagree on what is eligible as 'pedagogically valuable,' but the essence is clear: Hybrid education uses online technology to not just supplement, but transform and improve the learning process.

The author continued that while generally seen as a 'trend' in 'progressive learning,' Blended Learning can also be viewed as a tool to fill the gap between 'traditional education' and digital learning. For the last century or so students have been studying in brick-and-mortar schools and classrooms. This, of course, implies that digital-only is the future and the ultimate incarnation of learning, which is a short-sighted view. The point, though, is that blended learning is a mix of old and new as much as it is a mix of physical and digital learning.

As (Osguthorpe, 2003)indicated, one of the aims of the blended learning is to increase personal agency. The desired student model is the one whichdevelops self-awareness and self-discipline in his/her own education. In this sense, they are offered different kinds of alternatives they might need during their education thanks to blended learning. Students 'gaining freedom of self-paced learning'is alsoanother goal of blended learning.

Distance education became effortless due to developments in technology (J. Lynn McBrien, 2009). All the forms of distance education be it -online, web based or computer mediated or blended learning require a computer associated to a network. This enables learning from anywhere, anytime, in any rhythm and with any means (Venera-Mihaela Cojocariu, 2013). Online learning is a very useful tool that can make the teaching–learning process more student-centred, adaptable and innovative. Online learning can be defined as learning experiences in synchronous or asynchronous environments with the help ofvarious devices like mobile phones or laptops with access to internet. With these facilities,learner can be anywhere to learn and interact with instructors and other participants (Singh, 2019). In synchronous learning learners attend live lectures, it enables real-time interactions between both the parties involved i.e. educators and learnersand instant feedback can be shared. The asynchronous learning environments may not be appropriately structured. Here, there are no live lectures or classes,but the learning content is available in different learning systems and on different forums. It is not possible to give immediate feedback and instant response in this type of learning (Dhawan, 2020). One of the advantages of synchronous learning is that it gives lot of opportunities for social interaction (Jody Lynn McBrien, 2009). With the onset of pandemic, online platforms are the need of the hour. 40-50 students can be involved through video conferencing method.In various online methods of teaching- learning students can be engaged through discussions.The only requirement is good internet connectivity as lectures can be accessed on mobile phones as well as laptops.The pre-recorded lectures can be watched by learner in his own convenient time. In live lectures, students can give immediate feedback and getting assignmentsonline is also possible with the use of technology. (Kvavadze, 2020)

Objectives of the Study
The objectives for this study are as follows:
- To understand the perception of students towards traditional classroom learning vs. blended learning
- To understand the perception of faculty members towards traditional classroom teaching vs. blended teaching
- To study the learner engagement in blended learning
- To recognize the quality of student-faculty interaction in blended learning
- To know the future of blended learning

Research Methodology
Since our research was aimed to comprise a blend of both qualitative and quantitative feedback on the blended mode of learning, we decided to conduct an online survey in the form of a questionnaire (Google Form). It is a faster and economic mode of data collection specially in situations which have time constraints.
The margin of error is greatly reduced with online surveys because participants enter their responses directly into the system.This way, a questionnaire renders flexibility and freedom so that the survey can be tailored to each participant as he or she proceeds.

Data Analysis
The research was carried out on two primary stakeholders in educational institutions – the students and the faculty members. This section analyses the impact of blended learning on students and faculty and investigate the effectiveness of this approach in enhancing student learning outcomes and improving faculty engagement and satisfaction. The section also examines the challenges and limitations associated with the implementation of blended learning to provide recommendations for educational institutions looking to effectively adopt this approach in their own classrooms.

A total of 212 respondents were covered through a structured questionnaire, which included 60 faculty and 152 students, presented in the figure below.
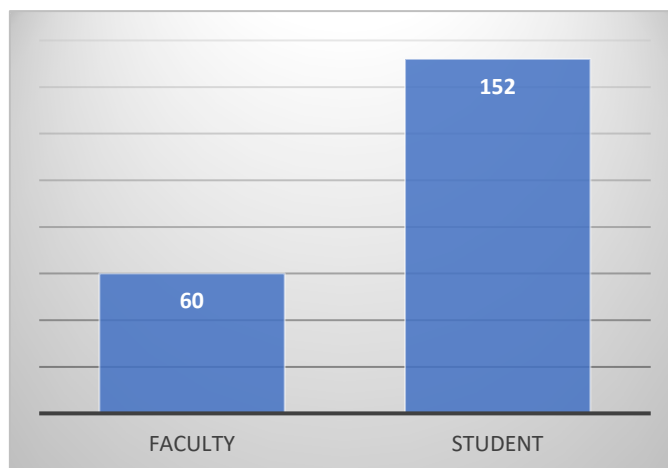

Figure No. 1– Number of Respondents

India has a growing and widespread internet infrastructure that has enabled access to the internet to millions of people across the country. As of 2021, India has an internet penetration rate of approximately 50%, with over 700 million internet users. India's mobile internet market is the largest in the world, with over 680 million mobile internet users. India has a relatively low average internet speed, with an average download speed of around 12 Mbps and upload speed of 4 Mbps. There are several internet service providers in India, including state-run BSNL, Airtel, Jio, Vodafone-Idea, and others. The Indian government has launched several initiatives to increase internet penetration and bridge the digital divide, including the Digital India campaign and Bharat Net project, which aims to provide high-speed internet connectivity to rural areas.

This reflects in the research findings as well. 204 respondents indicate that they had access to proper internet facility, presented in the figure below.
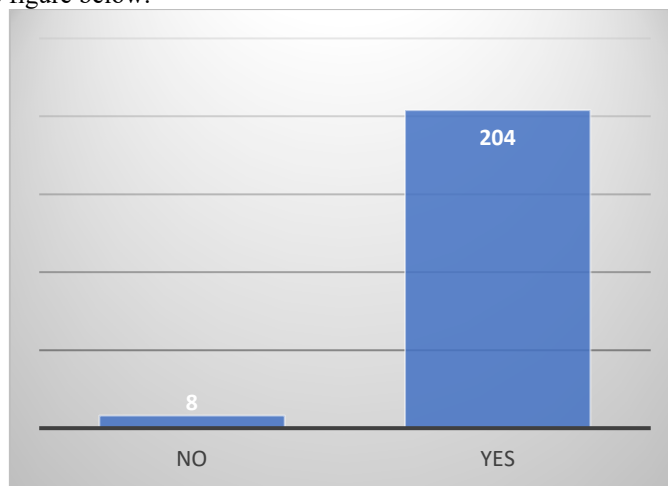

Figure No. 2– Access to Proper Internet Facility

However, this may also be because the respondents are primarily urban. Despite the growing internet infrastructure, there is still may exist a digital divide in India, with many rural areas lacking access to high-speed internet and other digital services. Overall, India's internet facility has made significant progress in recent years. The digital revolution has had a significant impact on blended learning, transforming it into a more dynamic, flexible, and effective educational approach.

Blended learning and traditional classroom learning are two different approaches to education that have their own strengths and weaknesses. Traditional classroom learning refers to the conventional method of teaching where a teacher stands in front of a class of students and delivers lessons through lectures, discussion, and other classroom activities. It usually involves a set schedule and structured curriculum, with students attending classes on a regular basis. Blended learning, on the other hand, is a more modern approach to education that combines

traditional classroom learning with online and digital learning. It usually involves a mix of face-to-face instruction and online learning, with students accessing materials and completing assignments through digital platforms.

The research finds, while overall the respondents indicate both formats are at par, students tend to hold more parity between the two as compared to the faculty. This is exhibited in the figure below.
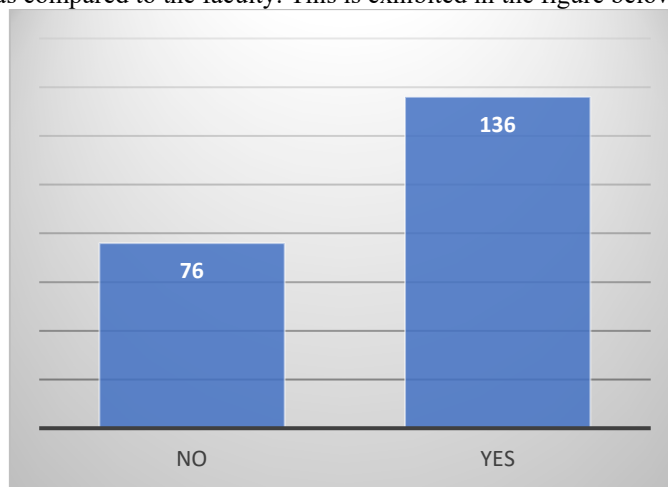

Figure No. 3 – Blended Learning at Par with Traditional Classroom Learning
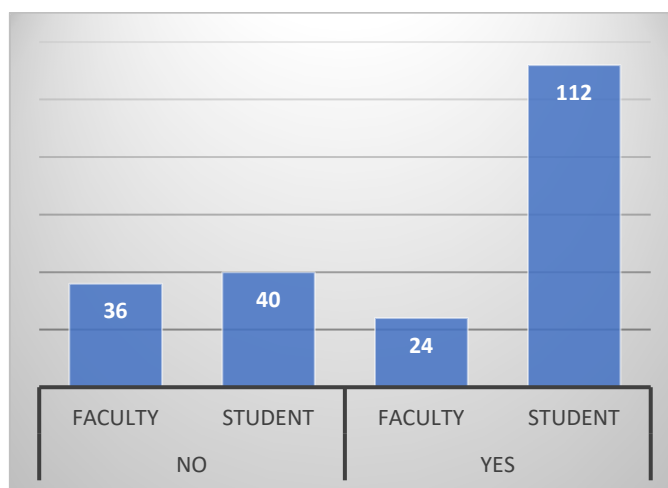

Figure No. 4 – Blended Learning at Par with Traditional Classroom Learning

It is not uncommon for there to be differences in preferences between faculty and students when it comes to learning methods. In the scenario where faculty prefer traditional classroom learning and students prefer blended learning, there are a few things to consider.

First, it's important to recognize that both traditional classroom learning and blended learning have their own unique advantages and disadvantages. Traditional classroom learning is often more structured and allows for more immediate feedback and interaction with instructors, whereas blended learning offers more flexibility and personalization for students.

Second, it's important to understand that both faculty and students have different learning styles and preferences. Faculty may have a more traditional approach to teaching that emphasizes face-to-face interaction and classroom discussion, while students may be more comfortable with digital tools and online resources.

One way to bridge this gap is to find a compromise that incorporates elements of both traditional classroom learning and blended learning. For example, faculty could consider using digital tools and online resources to supplement their traditional classroom instruction, or they could incorporate more interactive and collaborative activities into their teaching methods. It's also important to have open communication between faculty and students about their preferences and needs, and to be willing to adapt and adjust teaching methods as needed to

meet the needs of all learners. Ultimately, the goal should be to create a learning environment that is engaging, effective, and accessible to all students, regardless of their learning preferences.

The same difference in opinion reflects in the ease of engagement in blended learning. Overall, the respondents opine that they are able to engage in blended learning. However, 144 out of 152 student respondents gave a favourable response to learning engagement using blended learning, while majority faculty 36 out of 60 gave an unfavourable response towards learning engagement in blended learning.
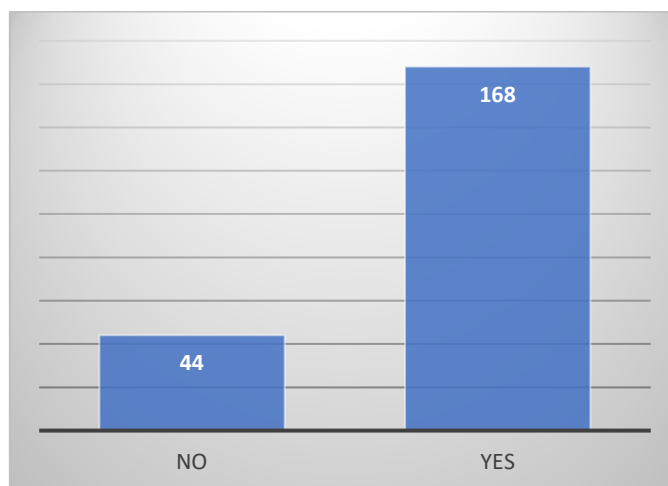

Figure No. 5– Ease of Learner/Learning Engagement in Blended Learning Formats
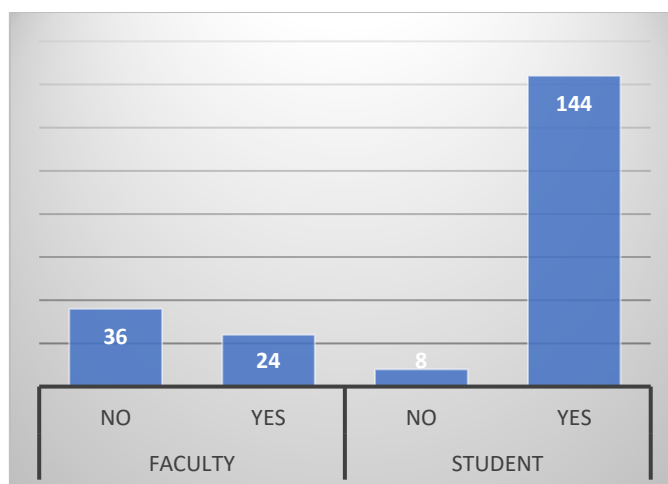

Figure No.6– Ease of Learner/Learning Engagement in Blended Learning Formats

Learning engagement is a key factor in the success of blended learning. Adapting to blended learning can be a significant transition for both faculty and students. To teach effectively in a blended learning environment, faculty need to be familiar with the technology tools and platforms that will be used. It's important to take the time to learn how to use these tools and to practice using them before the course begins. Course materials need to be redesigned to fit the new blended learning environment. This may include creating digital versions of lecture materials, developing online activities, and adapting assessments for online delivery.

Faculty may need to develop new teaching strategies to accommodate the online component of blended learning. This may involve incorporating more interactive and collaborative activities, and using different modes of instruction such as videos, podcasts, or online discussions. Regularly evaluation of the effectiveness of the blended learning approach and revisions are necessary. This may involve soliciting feedback from students and making adjustments to the course design, teaching strategies, or technology tools used.

Blended learning can have both upfront and ongoing costs, depending on the specific implementation and the resources required. Here are some potential costs to consider when implementing blended learning:

- Technology Costs: Technology costs are often the most significant upfront cost associated with blended learning. This can include the cost of hardware (such as computers or tablets), software licenses, learning management systems, video conferencing tools, and other technology tools needed to support online learning.
- Staff Training Costs: Staff training costs may be required to help instructors and support staff learn how to use new technology tools and adapt to new teaching strategies. This may include training sessions, professional development opportunities, and other forms of training.
- Content Development Costs: Creating new digital content, such as videos, online activities, or interactive simulations, can require significant upfront costs. This may include hiring instructional designers, purchasing licenses for content authoring tools, or contracting with content development companies.
- Ongoing Maintenance Costs: There may be ongoing maintenance costs associated with the technology tools used in blended learning, such as software updates, hardware upgrades, or technical support services.
- Marketing Costs: Marketing costs may be required to promote the blended learning program to potential students. This may include advertising campaigns, targeted outreach to specific groups, or other forms of marketing.

The research also sought respondents view on whether blended learning saves cost of operations. Majority of respondents responded favourably.
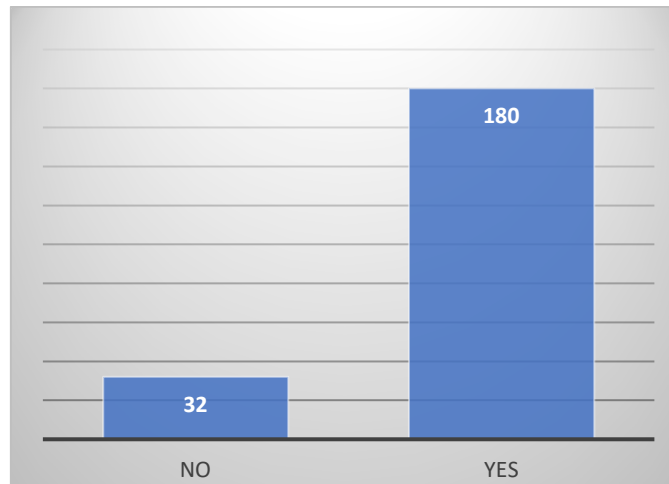

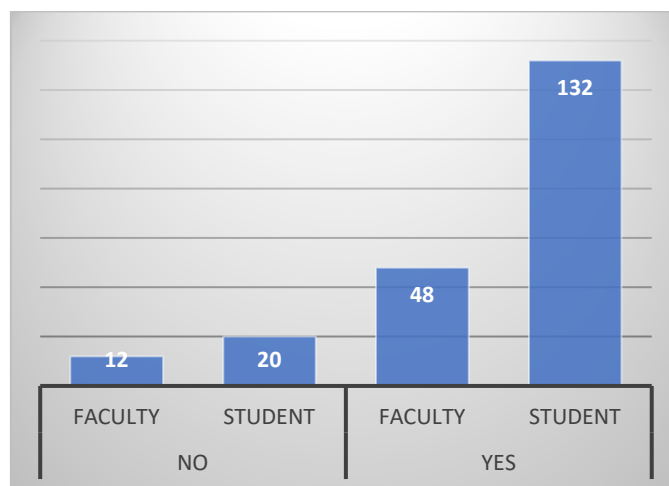Figure No. 7– Cost of Operations in Blended Learning Formats

Figure No. 8– Cost of Operations in Blended Learning Formats

It's important to note that while there are costs associated with blended learning, there may also be cost savings over time. For example, by reducing the need for physical classroom space or textbooks, blended learning can

reduce overhead costs in the long run. Additionally, by increasing student engagement and improving learning outcomes, blended learning can lead to greater student retention and revenue over time.

It is difficult to predict the future of education and whether blended learning will continue indefinitely. Majority of the respondents, both faculty and students, predict that blended learning may not continue forever, as presented in figure below.
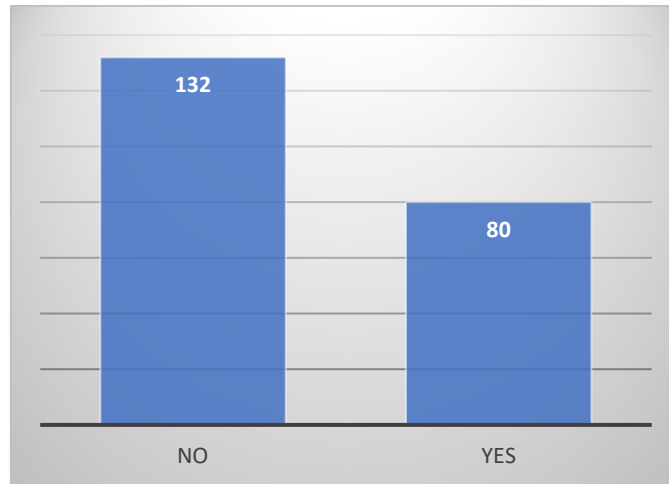

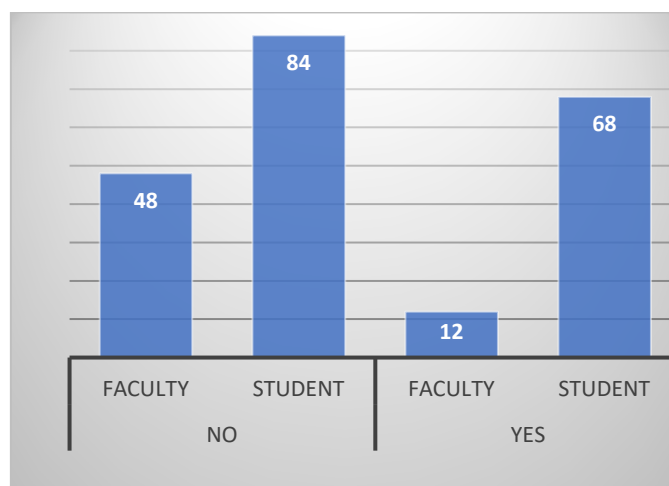Figure No. 9 – Will Blended Learning Continue Forever?

Figure No.10 – Will Blended Learning Continue Forever?

Blended learning has become increasingly popular in recent years due to its ability to offer a flexible, personalized learning experience that combines the benefits of both online and traditional learning. Additionally, the COVID-19 pandemic has accelerated the adoption of blended learning as a necessary solution to the challenges of remote learning and social distancing.

Even after the pandemic ends, it is likely that many educational institutions will continue to offer blended learning options as a way to accommodate diverse student needs and preferences. Blended learning also offers the potential for cost savings and increased access to education, which may make it an attractive option for many institutions.

However, it's important to note that blended learning is not a one-size-fits-all solution, and that it may not be appropriate or feasible for all educational contexts or subject areas. Additionally, there may be ongoing challenges associated with the implementation of blended learning, such as the need to continuously update technology tools and provide ongoing support to students and faculty. This also reflects in research findings.
The research finds that blended learning can be considered more environmentally friendly than traditional classroom learning because it can reduce the amount of pollution generated by commuting to and from a physical classroom. By reducing the need for students and faculty to travel to a physical location, blended

learning can help to reduce greenhouse gas emissions and other pollutants associated with transportation. This is presented in the figure below.
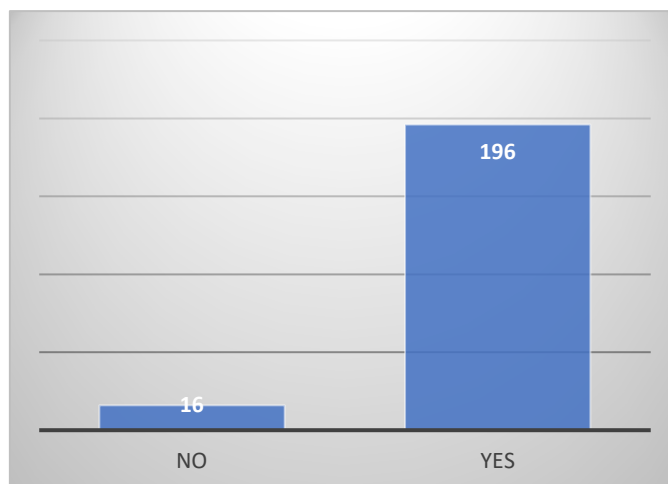

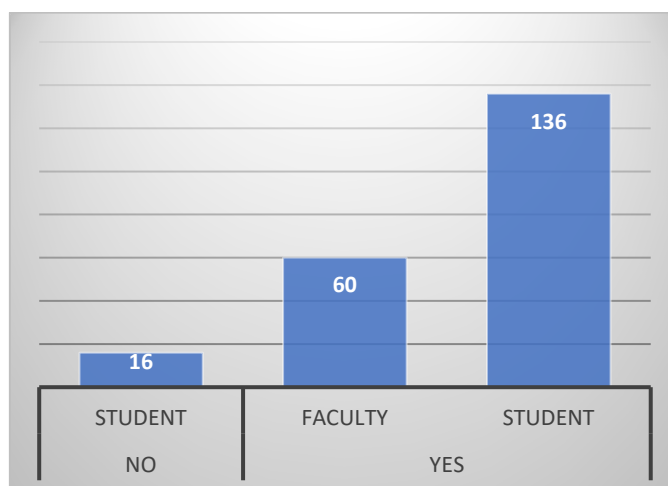Figure No. 11– Is Online learning environment friendly?

Figure No. 12– Is Online learning environment friendly?

According to a study by the University of Pennsylvania, blended learning can reduce carbon dioxide emissions by up to 85% compared to traditional classroom learning. This is due to the reduced need for transportation, as well as other environmental benefits associated with digital learning, such as reduced paper usage and energy savings from using online resources instead of physical textbooks. However, it is important to note that the environmental impact of blended learning can vary depending on the specific implementation and the resources used. For example, if students are required to use energy-intensive devices such as laptops or tablets that are frequently replaced, this could negate some of the environmental benefits of blended learning.

Overall, while blended learning may not be a perfect solution to environmental concerns, it can be considered a step in the right direction towards reducing the carbon footprint of education. By reducing the need for travel and other resources associated with traditional classroom learning, blended learning can help to mitigate some of the negative environmental impacts of education.

Blended learning has the potential to provide equal opportunities for learning. This is one of the findings of the research which reveals that majority of respondents, both students and faculty believe that blended learning has the capability to enable equal opportunities to learning.
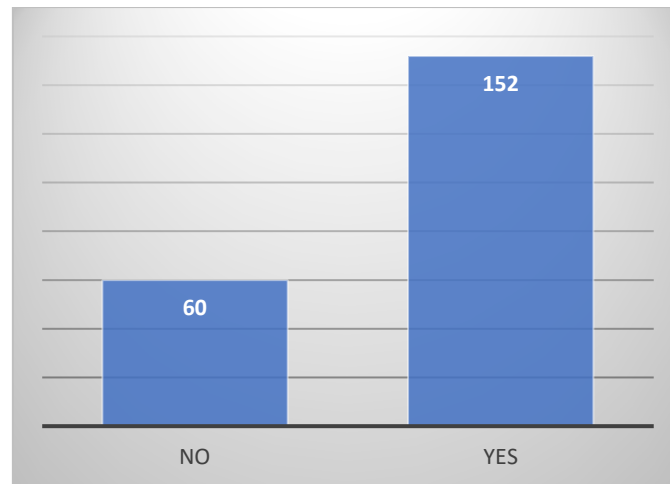
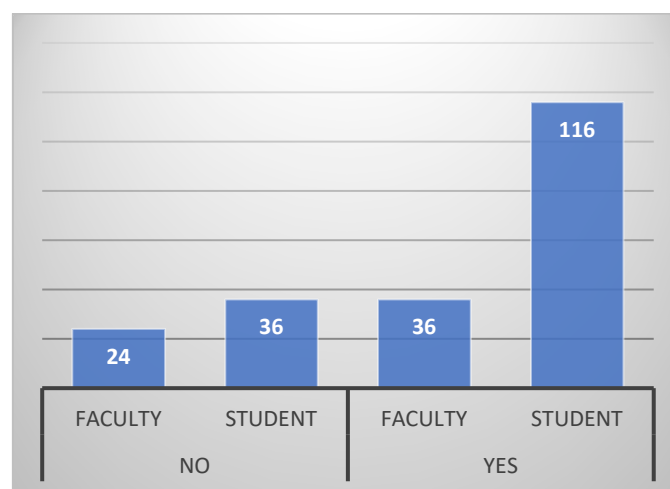Figure No.13– Does Blended Learning Provide Equal Opportunities to Learning

Figure No.14– Does Blended Learning Provide Equal Opportunities to Learning

However, access to technology and reliable internet connectivity can be a barrier for some students, particularly those from lower-income backgrounds or rural areas. Without access to the necessary technology and resources, students may not be able to fully participate in blended learning programs or may face additional challenges. Additionally, blended learning requires a certain level of self-motivation and discipline, as students are often responsible for managing their own learning and keeping up with coursework. This can be challenging for students who may require more structure and support in order to succeed.

In order to ensure that blended learning provides equal opportunities for all students, it is important for educational institutions to provide access to the necessary technology and resources, as well as support services to help students succeed in a blended learning environment. This may include providing access to loaner devices, internet hotspots, tutoring, and other support services as needed.

The quality of student-teacher interaction in blended learning can vary depending on a variety of factors, including the specific technology tools used, the level of instructor support, and the nature of the course content. One potential advantage of blended learning is that it can provide increased opportunities for one-on-one interaction between students and instructors, as well as opportunities for collaborative learning with peers. For example, online discussion forums, virtual office hours, and video conferencing tools can all provide opportunities for students to interact with instructors and classmates in meaningful ways.

However, the quality of student-teacher interaction in blended learning can also be negatively impacted by factors such as technical difficulties, lack of engagement or participation from students, and lack of instructor training or support. In order to ensure high-quality student-teacher interaction in blended learning, it is important for instructors to be trained in effective online teaching practices, including how to facilitate discussions, provide feedback, and build relationships with students in a virtual environment. Instructors should also be

available and responsive to student questions and concerns, and should provide regular feedback on student progress.

Additionally, the use of interactive technology tools, such as video conferencing and collaborative software, can help to facilitate meaningful interactions between students and instructors. These tools can help to create a sense of community and foster engagement in the learning process, which can lead to higher levels of student success. Majority of respondents believe that blended learning formats lead to improved quality of interaction between faculty and students, as exhibited in the figure below.
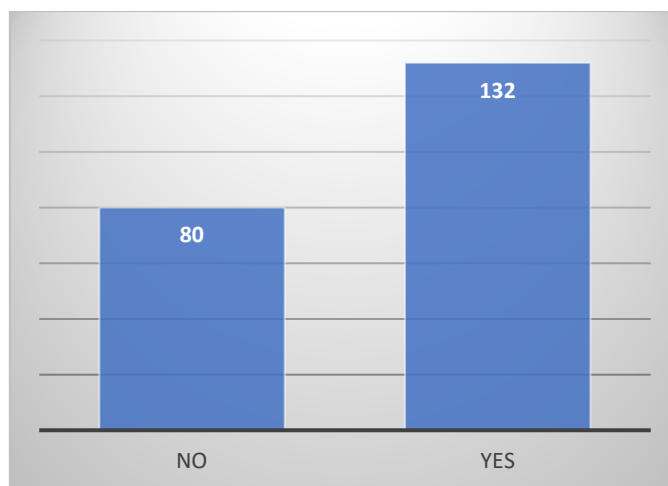

Figure No.15– Improved Quality of Student-Faculty Interaction in Blended Learning Formats
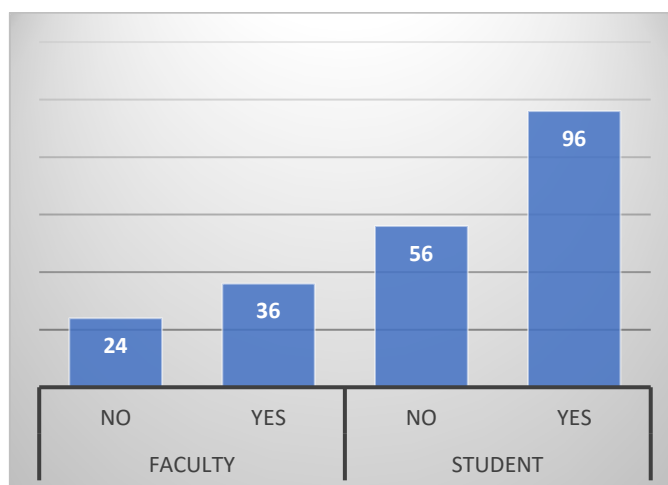

Figure No.16– Improved Quality of Student-Faculty Interaction in Blended Learning Formats

Overall, while the quality of student-teacher interaction in blended learning can vary depending on a variety of factors, it seems that, with the proper tools and support in place, blended learning has the potential to facilitate high-quality interactions between students and instructors, leading to positive learning outcomes.

One advantage of blended learning is that it can provide greater flexibility in terms of scheduling and location, which can help to accommodate students with different needs and responsibilities. For example, students who have work or family obligations may find it easier to participate in blended learning programs that allow them to complete coursework online at their own pace. Blended learning can provide a range of benefits, including increased flexibility and personalized learning experiences for students, as well as opportunities for collaboration and interactive learning.

This emerges from the research findings, where majority of respondents opine that blended learning provides greater flexibility which is presented in the figure below.
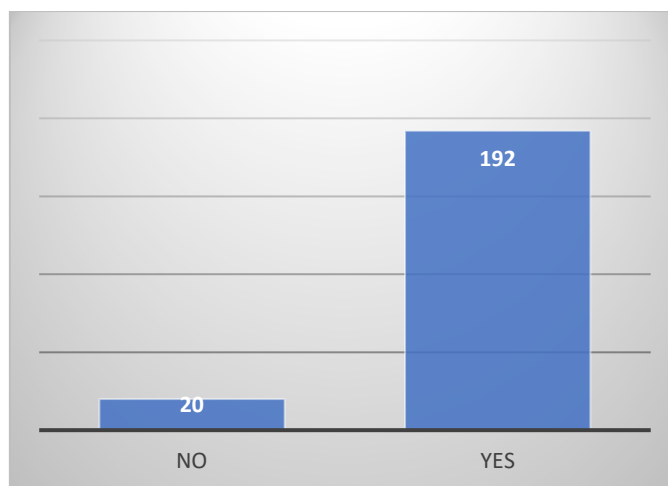
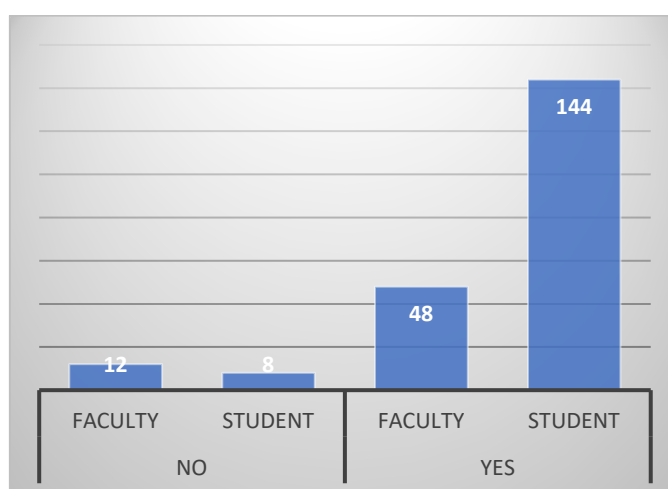Figure 17– Flexibility of Learning Execution in Blended Learning

Figure 18– Flexibility of Learning Execution in Blended Learning

Implementing blended learning may also present several challenges, including technical difficulties, faculty training, and student access to technology and resources. However, with proper planning and support, these challenges can be overcome, and blended learning can provide flexibility and a range of benefits for both students and instructors. To ensure successful implementation of blended learning, it is important to provide adequate support and resources for both students and faculty, including technical support, training, and access to the necessary technology and resources. Additionally, it is important to establish clear expectations and guidelines for participation, communication, and assessment to help students and instructors navigate the blended learning environment.

The research finds that blended learning is at par with traditional class room learning has a high degree of positive correlation with other research variables including -
- Learner/learning engagement in the blended learning process is easy.
- Blended learning saves a lot of cost of operations.
- Blended learning will continue forever.
- Blended learning is environment friendly as it saves a lot of traveling which leads to pollution.
- Blended learning enables equal opportunity to all to learn.
- Blended learning improves quality interaction between teachers and students.
- Blended mode of learning is flexible in execution.

This is presented in the correlation table below.

Other Research Variables	Blended learning is at par with traditional class room learning.
Learner/learning engagement in the blended learning process is easy.	0.296536234
Blended learning saves a lot of cost of operations.	0.34422355

Blended learning will continue forever.	0.257288903
Blended learning is environment friendly as it saves a lot of traveling which leads to pollution.	0.084309587
Blended learning enables equal opportunity to all to learn.	0.141724445
Blended learning improves quality interaction between teachers and students.	0.148553712
Blended mode of learning is flexible in execution.	0.297141959

Table no. 1 -Corelation between blended learning and traditional classroom learning

A high degree of correlation between parity of blended learning with other research variables means that there is a strong relationship between them. It indicates that blended learning, which combines online and face-to-face instruction, has become increasingly popular in recent years, and it is likely to continue to grow and evolve in the future. As technology continues to improve, blended learning may become even more personalized, allowing students to learn at their own pace and receive individualized feedback and support. Blended learning may incorporate more immersive technologies like augmented reality and virtual reality, allowing students to explore virtual environments and interact with digital objects and simulations.

Blended learning provides flexibility in terms of time, location, and pace of learning. This is particularly valuable in today's fast-paced and globalized world, where students need to be able to learn anytime and anywhere. It can facilitate collaboration among students and teachers, whether they are in the same physical space or spread out across the globe. This can lead to more diverse perspectives and better problem-solving. With the use of learning analytics and other data-driven tools, blended learning can provide insights into student performance and engagement, allowing teachers to personalize instruction and improve learning outcomes.
Overall, the future of blended learning is likely to be marked by continued innovation, personalization, and flexibility, with a focus on improving student outcomes and providing access to high-quality education for all.

Findings and Suggestions
From the research, we found that Blended Learning mode comes with a gamut of advantages that were addressed both by the students group as well as the faculty group. But it also has certain limitations those need some attention.

Advantages:
- The Blended Learning let students move on fluid schedules among learning activities according to their need. This gives the students a higher degree of control over their learning.
- Students as well the teachers become more tech savvy and they gain enhanced digital fluency via Blended Learning mode.
- It paves way for easier access to distant education. Through Blended Learning, complex resources can be shared easily which promote the greater union of quality information. Students as well as teachers have reported that they get access to online resources quite easily, which aids them to improve their professional expertise.
- Through our survey, we found that mostly people agreed that Blended learning helps in saving a significant cost of operations. It also indirectly aids in sustainable environment as less transportation means limited vehicles, which checks pollution to a certain level. Hence it is economical as well as environment friendly.

Disadvantages:
- In spite of the fact that internet penetration is rapidly increasing in India, many colleges still don't have proper internet bandwidth. So some sections of population may take a hit with Blended Learning mode, until smoother Wi-Fi facility is established.
- In our survey, many participants, especially the faculties admitted that there remains a mismatch or discord in the student-teacher interaction at times when classes are conducted in an online mode. It becomes difficult for the teachers to keep track of every student, and hence students pay lesser attention. This, on a cumulative basis in future can adversely affect the all round development in the students.

Some possible Solutions:
- To mend the problem of teacher-student interaction, an increase in the ratio of faculty to student is the need of the hour. It can help the students to have diverse opinions as well as allow the teachers to understand the students better. Scope of one on one interaction increases.

- More participatory activities should be included in the curriculum which stimulate the students mentally. In this way, their attention span is retained. Lack of attention of students was a major grievance among the faculty. So a systematic inclusion of online co-curricular activities in the routine can also help to alleviate this error.

Possible Solutions for Problems

Though there are number of challenges attached with online teaching, we also need to appreciate the incentives the online platforms have given us in times of this crisis situation of the pandemic. These issues can always be worked out to the mutual benefit of the educator and the learner. Along with live lectures, there can be provision of recording the lectures which can be accessed by the learner later so that no student is deprived of learning.Efforts should be made to create more interactive, interesting, and dynamic online courses to retain the interest of the learners. The teachers have an important role in ensuring student engagement by asking frequent questions and delivering lively sessions. In case students ae facing difficulty in coping with online environment, personal attention can be given to overcome the problem. Communication is the key in times of crisis. Frequent communication with all students by way of various social media forums and groups will help students to adapt to the new learning environment. Quality in content and delivery will help to attract and retain the attention of the students. The content must be student -centred, relevant, creative and activity based. (Gibbs, 2003). Instructions have to be clearly communicated to the students, efforts to collect frequent feedback and making the students ask questions should be practiced by educators. This will develop the learner horizon for the course content (Keeton, 2004). There have to efforts for collaborative learning, case learning, and project-based learning through online instructions (Bonk, 2006) .

To conclude, for the educational institutions the challenge is not only finding new technology and using it but also re-structuringits delivery and thus helplearners and educators who are looking for digital literacy.

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