

BLENDENED MODE OF LEARNING: NEW NORMAL FOR 21ST CENTURY LEARNERS

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ABSTRACT

COVID-19 pandemic affected the education system severely. During this difficult time to avoid the social interaction, students and teachers faced various challenges. However, after significant decline in COVID cases, blended mode of learning appeared to be more practical and relevant learning approach. The main aim of this research is to know the perception of students towards blended mode of learning and to compare the factors towards blended mode of learning amongst students at undergraduate and postgraduate level. The study highlighted three factors of Blended mode of Learning i.e., Flexibility and time management, interaction and instructional materials and learning outcomes. The results show no significant difference between level of perception amongst undergraduate and post-graduate students in blended mode learning. There is no difference between undergraduate and postgraduate students with respect to flexibility and time management and learning outcomes factor while the study highlighted the significant difference between undergraduate and post-graduate students with reference to the Interaction and Instructional Materials.

Keywords: Blended Learning, Comparative analysis, E-Learning, Higher Education, Online Learning, Perception, Students, Teaching

Introduction

Education is one of the means to reach to the destination of success. It is a set of procedures which prepares a person to be competent enough to run in the race of life. Education starts from very young age and it never stops or ends. The teaching methods used for education could be many but the most accepted are classroom and online teaching. One of the most distinctive styles of education which is more noticeable in recent days is “Blended mode of learning”. Blended mode learning means combining two processes of learning pedagogy i.e. online and face-to-face learning together. Blended mode learning is a mix of digital and on campus activities, where a student can opt between the two modes of teaching.

Due to the COVID-19 outbreak, the education system was terribly affected. Many education institutions switched to online education and carried on with the same. As per UNESCO report, “191 countries in the world (98% of the global student population) switched to online lessons.” Microsoft Teams, Google Classrooms were few common sites. COVID-19 was the period when everyone shifted to online methods of learning, as offering on-site lessons was difficult. Blended mode of learning was opening doors for the learners to attend classes in either traditional place-based classrooms or online classes as per their convenience. Covid-19 highlighted the requirement of “integrated learning” which is flexible and suitable for learners and educators.

Conceptual Framework

Definitions of “Blended Learning”

According to Oxford Dictionary. “Blended Learning is a style of education in which students learn via electronic and online media as well as traditional face-to-face teaching.” Blended mode of learning is combination of online educational materials and old place-based classroom methods. It is an educational style in which the physical presence of learner and educator is required, where both have control over pace, path, place and time. It opens a flexible platform in choosing the mode which the learner feels comfortable. It is a style of teaching wherein a learner has two options to be chosen as the medium of learning namely, face-to-face and online learning. Chew et al., (2008) revealed that “blended learning involves the combination of two fields of concern: education and educational technology”.

According to University Grants Commission (UGC) New Delhi, “Blended mode of education is an instructional methodology, a teaching and learning approach that combines face-to-face classroom methods with computer mediated activities to deliver instruction. This pedagogical approach means a mixture of face-to-face and online activities and the integration of synchronous and asynchronous learning tools, thus providing an optimal possibility for the arrangement of effective learning processes. Blended learning is the term given to the

educational practice of combining digital learning tools with more traditional classroom face to face teaching. Resources such as video lectures, podcasts, recordings, and articles would be provided to transfer the main bulk of the necessary knowledge from teacher to student before each class. This then frees up time in class for teachers to support students in activities, lead discussions and facilitate engagement.”

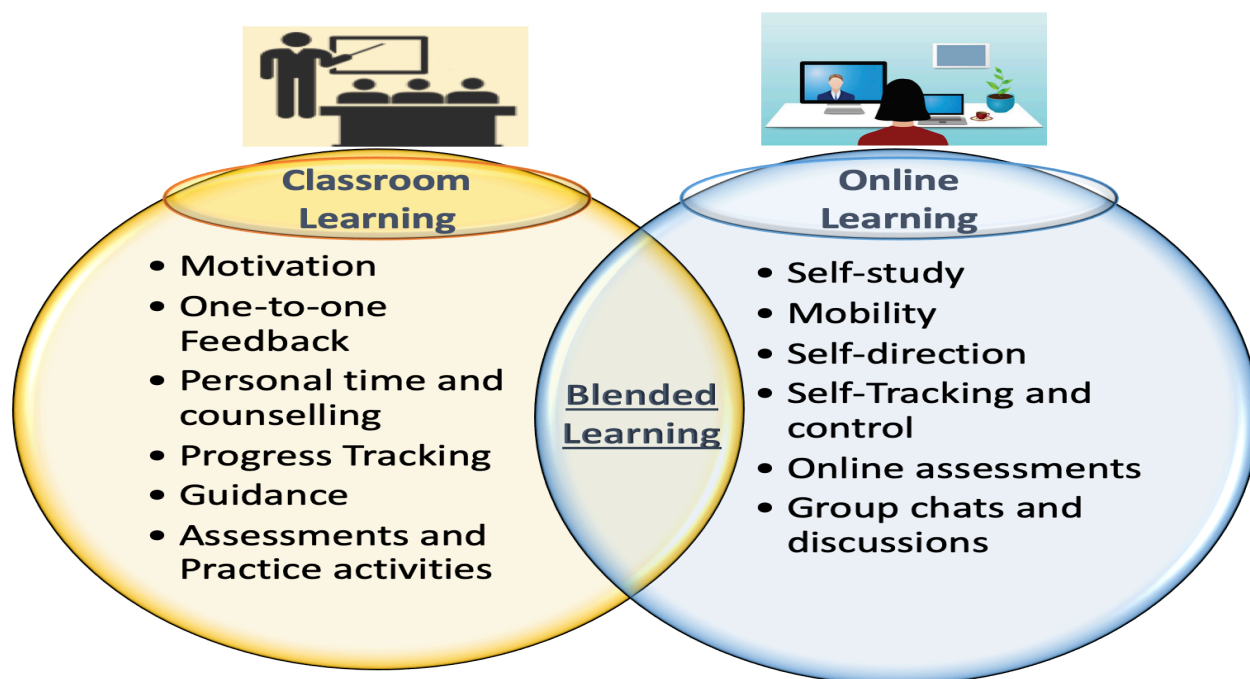


Figure 1: (Source : designinginstructionwith k.com /2019/06/23/blended learning)

According to Krasnov (2015) blended learning is a “method of teaching that combines the most effective face-to-face teaching techniques and online interactive collaboration, both creating a system that functions in continuous association and formulate a single whole”. ASTD (American Society for Training and Development) identified top ten trends in the knowledge delivery industry and blended learning was one of them (cited by Rooney, 2003). As per Singh (2003), blended learning is a combination of “effectiveness and socialization opportunities of the classroom with the technologically enhanced active learning possibilities of the online environment, rather than a ratio of delivery modalities”. Dziuban et al. (2004) highlighted that blended learning is merging of internet and digital media with classroom which requires the physical of students and teachers.

Friesen (2012) revealed that methods used in blended learning keeps the life of students active while providing the social connectivity which is essential for clear communication, finally supporting success and retention. According to Graham (2013), blended learning as a combination of online and offline experiences “to generate effective, efficient, and adaptable learning”. As per Staker and Horn (2016) blended learning is a “formal education program in which students have control over time, place, path, and pace and at least in part at a supervised brick-and-mortar location away from home”. Some researchers highlighted that “Blended learning as most suitable and advanced methods for university education that acquaint the learner with continuous learning to educate himself and develop his knowledge because the goal of university education is to develop critical and creative thinking skills and generate new knowledge.” Thus, the students of university can endure their learning in the future (Oweis, 2018; Tongchai, 2016).

Significance of Blended Mode Learning

Blended Mode learning provides flexible learning process as learners can opt between two modes according to their flexibility. It is more convenient as learners can learn without the hurdles of location and time. Blended mode helps in time management as a learner can choose between two modes according to his/her other workload. Blended mode is suitable for large number of audience and can reach to them in a short duration. In blended learning mode a lesser number of classrooms, training centers and instructors are required therefore, less cost incurred in it. Less commuting time is also the benefit of blended mode of learning.

Models of Blended Learning

The six original models of blended learning are *Face-to-face driven model* in which classroom learning is escorted with online learning; *Rotation model* where students rotate between online and other classroom-based experiences; *Flex model* where students learn mostly online as per their personalized time table, and teachers offer face-to-face support whenever needed; *Online lab model* is a traditional studies is accompanied by an extra online on-campus course; *Self-blend model* is a traditional study is accompanied by extra off-campus online course and *Enriched virtual model* where learning takes place mostly through online method with infrequent visits to a brick-and-mortar setting for face-to-face tuition.

Later, Stake and Horn (2016) revised original model and left with the enriched virtual, flex, rotation and self-blend models. *Rotation Model* combines online engagement with face-to-face instructions in a periodic way, *In Flex Model* many students get involved primarily online, under the direction of an educator who is physically present, In *Self-Blending Model* - students select different courses independently, but a teacher and other students are also present and in *Enriched-Virtual Model* virtual experiences are enriched only periodically through physical co-presence.

Table 1 Three Models of Blended Learning.

(Source: Hannon & Macken (2014))

MODEL 1	MODEL 2	MODEL 3
Blended presentation and interaction	Blended block	Fully online
Activity-focused face-to-face sessions blended with online resources. For example, the flipped curriculum model combines: <ul style="list-style-type: none"> • short lecture podcasts, online resources with • face-to-face tutorial/seminars for interaction and presentation of group work. 	Combination of: <ul style="list-style-type: none"> • intensive face-to-face sessions as one day or half days • weekly online tutorial/seminars for activities and interaction • online content and resources 	Combination of: <ul style="list-style-type: none"> • short lecture podcasts with online resources and learning activities • online tutorials (synchronous) • interaction via online collaboration, discussion forums and/or group work

Literature Review

Bhushan (2020) highlighted that there should be combination of online and offline learning where students can interact with their teachers whenever need arise. In online teaching, there must be a regular meeting of teachers and students. Online/offline choice must be given to students for doubt clarification and discussion. For smooth functioning of online learning student's must be provided with a complete support system. Khan et al. (2012) recognized blended mode learning as accessible, varied, interactive, flexible and efficient learning experience for educators and learners. Blended mode learning method is the assortment of technology supported learning methods and prevailing old-style classroom-based learning. Continuous evaluation is significant in judging the knowledge of the students in the subject at all levels. Through blended mode of learning lecture delivery and student's assessment can be done in creative and innovative manner.

Dallas (2021) suggested that the COVID-19 pandemic has enhanced the possibilities of new teaching pedagogy such as hybrid learning for the future education. This has proven that education has no barriers and students can learn anytime, anywhere and anything. This creates increased need of advanced technology and resources for management and teachers. The author suggested that as teachers plan, the role of hybrid learning will be important in the future of education. AT&T's (2021) Future of School Report says:

- Adequate resources, curriculum, and support are the choice of 94 percent teachers in hybrid learning
- 71 percent of teachers support virtual classes for inclement weather
- Virtual tutoring sessions or enrichment programs are the choice of 78 percent teachers
- Classroom live streaming for home sick students is the choice of 60 percent.

Marquis et al. (2017) suggested that higher educational institutes have demands to develop and deliver course content through alternate modes of delivery. In current years a variety of courses have been developed out of which one is blended course design or hybrid model. The study noted a very slight difference in performance of

the student between hybrid model and traditional instruction model. India Today Web Desk (2021) survey revealed that Covid-19 has also proven that in a very short period the convenience and flexibility feature of integrated learning make online education an important element of the education system. "Majority Indians prefer a mix of online and in-person training or course. 81% of people in India believe that students can have a good university experience combining in-person and online, hence giving way to blended learning."

It further adds, "Whereas, 88% of learners globally say online learning will be a permanent part of primary, secondary and higher education moving forward. 87% of Indian students think online learning will be a part of the education experience moving forward. Thus, the blended learning approach will be the norm in the new normal adopted by educators." Muller et al., (2020) pointed out that although the significance of blended learning is increasing day-by-day in the field of management education, but the existing research shows unpredictable results. Dropout rates continue to be high, and learners prefer face-to-face over online meetings. Whereas, several studies found significant effects of blended environments and its main features on learning effectiveness.

The findings of a research with 115 management graduates highlighted cognitive characteristics such as experience, as a main mediator. Accordingly, management scholars while examining blended learning environments should keep in mind the subsidiary effects from related disciplines. Furthermore, instructors confirm flexibility and interaction should be there in environment of blended learning, and they are liable for cognitive learner characteristics. Hapke et al. (2021) proposed that "a learning innovation called 3-in-1 Hybrid environment as a solution for educational institutions to meet the challenge of balancing campus reopening against public health risks amid the COVID-19 pandemic".

The study revealed that hybrid learning innovation enhances emotional, behavioral, and cognitive engagement. It gives choices to the students to join class synchronously (face-to-face or remote) or asynchronously (online) in an interactive learning setting. The study found that there is a positive attitude towards 3-in-1 Hybrid learning. The students found that the high percentage of attendance and less number of missed quizzes and homework; and quiz performance are strong mediators between synchronous attendance and actual learning.

Objectives

- To identify the factors influencing perceptions of undergraduate and post graduate students towards blended mode of learning.
- To compare the identified factor of blended mode of learning amongst undergraduate and postgraduate students.
- To compare the perception of undergraduate and postgraduate students towards blended mode of learning

Method

The Study

The study aimed to identify the factors affecting perception of students towards blended mode of learning.

The Sample

An investigation was conducted using post-graduate and undergraduate students of private institutes in Madhya Pradesh, in India. Convenience sampling method was used as the sampling method in the study. The sample size was 200 students (100 undergraduate and 100 post graduate) of private institutions. A valid sample of a study should be five times of the number of questions in the questionnaire. The total number of 200 students in this study, which suggests that it is a valid sample (Wu, 2012),.

Tools for Data Collection

A self-structured questionnaire was designed. The questionnaire included the five-point Likert Scale. In total 13 items were used for this study excluding items used for demographic variables that contained gender, age, and level of education

Tools for Data Analysis

To find out results for interpretation, Reliability, Kaiser- Meyer-Olkin (KMO) and Bartlett's test of sphericity, Z-Test and Factor Analysis were used to analyze data using SPSS.

Reliability of the Measures

Reliability of the measure was calculated with the use of Cronbach's alpha on all the 13 items. Cronbach's alpha allows to measure the reliability of different variables. It is consisted of estimates of how much variation in scores of different variables is attributable to chance or random errors (Selltiz et al., 1976). A coefficient greater

than or equal to 0.7 is considered acceptable and a good indicator of construct reliability (Nunnally, 1978). The Cronbach's alpha for the questionnaire was found to be 0.816 (Table 1). Hence, it was reliable for further analysis.

Table 1: Reliability Statistics

Cronbach's Alpha	N of Items
.816	13

KMO & Bartlett's test of Sphericity

KMO (Kaiser-Meyer-Olkin) Measure and Bartlett's test value was .874 (Table 2), The Factor analysis depends on the scores of KMO (Kaiser-Meyer-Olkin) which indicate the suitability of the data for the factor analysis. Higher values of KMO indicates that the factor analysis is statistically appropriate for data analysis. The value of KMO close to 1 would explicate a perfect relationship between variables and thus make sure that the findings of factor analysis can be considered appropriate. If the value of KMO is below 0.5, then it is recommended that the factor analysis is not appropriate somewhat the researcher should try to gather more data.

Table 2 : KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.874
Bartlett's Test of Sphericity	Approx. Chi-Square	2.019E3
	Df	78
	Sig.	.000

Factor Analysis

Factor analysis is used for data reduction to classify most important factors which are significant in the study. There were three factors identified which affected the perception of the students towards Blended Learning. These factors were named appropriately based on the variables. Table 3 presents factor loadings and naming of the factors as follows.

Table3 : Rotated Component Matrix

	Component		
	1	2	3
VAR00002	.810	.005	-.069
VAR00006	.803	-.025	-.050
VAR00001	.801	.079	-.142
VAR00011	.739	.030	-.004
VAR00003	.737	.022	-.075
VAR00012	-.153	.732	.282
VAR00008	.039	.694	-.089
VAR00013	-.154	.686	.224
VAR00007	.069	.668	.132
VAR00010	.110	.000	.789
VAR00009	-.204	.079	.742
VAR00004	.186	.849	.426
VAR00005	.332	-.614	.278

Factor 1 - Flexibility & Time Management

This factor has a load of 3.89. It includes a total of 5 items. Item 2 "Blended Mode of learning provide Flexibility in Learning Process (.810)", item 6 "Blended Mode of Learning an Ease in Learning Process (.803)", item 1 "Blended Mode of Learning is Convenient" (.801), item 11 "In Blended Mode of Learning Comfort Level is High (.739)" and item 3 "Blended Mode of Learning helps in Efficient Time Management (.737)". This factor has highest factor load. The findings of present study are as the study of Pechenkina and Aeschliman

(2017). The authors reported that flexibility, opportunities of face-to-face interaction along with streamlined feedback and accessibility are the main factors for student's choice for blended learning compared to completely face-to-face or online education.

According to Rovai (2003) and Selim (2007), time management and computer competency of the learner are important in distance learning contexts as well as in online classes. Song et al. (2004), found that time management is a critical factor in online learning effectiveness. "Credibility, accessibility, flexibility, personalization, transparency, productivity, and interactivity are success factors that motivate students to participate in online and blended learning" (Blieck et al., 2019). Kintu et al. (2017) showed that self-regulation of learner was good enough at 72.3 percent in goal setting, task strategies, time management, environmental structuring, self-evaluation and help-seeking and among students.

Factor 2 - Interaction and Instructional Materials

This factor has a load of 2.78. It includes a total of 4 items. Item 12 "In Blended mode of Learning the Interaction with the Instructor is Easy (.732)", item 8 "Blended Mode of Learning provides good quality of instructional materials to Learner (.694)", item 13 "Interaction with Peers in Blended Mode of Learning is Easy (.686) and item 7 "Combination of Face-To-Face Learning and Online Learning Meet Learning needs of learner (.668)". This is another important factor of Blended mode of learning for students. The findings of the present study are supported by the findings of Salameh (2005, cited in Al-Zu'bi and Bani-Domi, 2012) who identified important factors of blended learning success namely, student-teacher interaction, teamwork, flexible test, continuous communication, content frequency, and enhancing student self-learning.

The research highlighted that lack of student interaction causes failure and drop-out in online courses (Willing and Johnson, 2009). Lack of learner connectedness was also identified as an important internal factor leading to drop-out in online courses (Zielinski, 2000). It was also found that learners may not continue in e-learning and blended learning if they are not able to make friends, thereby, being disconnected and developing feelings of isolation during their experiences in blended learning (Willing and Johnson, 2009). Interactions of Learners with educators and peers can make blended learning effective as lack of interaction makes learners to withdraw (Astleitner, 2000).

Dani et. al. (2018) identified the factors which affects the perception of students in online learning namely, effective teaching, participation, popularity, convenience, promptness and personal attention, cost effectiveness and quality oriented. The authors concluded that familiarity of online learner with the online instructor provides more relaxation in online class. The instructor plays a very important role in online class because he has more liability in online class. As per the report of US Department of Education (2009, p. xvii), in online learning for enhancing the learning the students are motivated to devote more time engaged with the learning materials and this become important to online learning and play a key role in effective listening practice (Blake, 2011; Yang et al, 2013).

ess of blended learning has been deemed by Stacey and Gerbic (2008) as a concept related to learning practices that result in a high-quality learning outcome, a high level of student learning experience and a high level of teacher satisfaction, considering that learning using this modality requires an acceptable workload. A key vein of the literature on blended learning examined factors affecting students' performance or learning outcomes in blended learning environments. Lim and Morris (2009) studied the effect of learner and instructional variables on learning outcomes and found that learner, instructional, and motivational variables had significant effects on learning outcomes, i.e., perceived learning application. Salameh (2005, cited in Al-Zu'bi & Bani-Domi, 2012) identified some factors of blended learning success such as student-teacher interaction, teamwork, flexible test, continuous communication, content frequency, and enhancing student self-learning. Al-Hadhoud & Al-Hattami (2017) indicated that the implementation of blended learning is still limited to some obstacles such as lack of Internet access, classroom congestion, limited computerized curriculum, and low skills of using Internet and computers, lack of training on the implementation of blended learning, interrupted training of new teachers, and theoretical training course. Al-Fuhaid (2015) conducted a study to identify the current utilization as well as requirements and obstacles of blended learning using a sample of educational supervisors and teachers from Qassim region, Saudi Arabia. The results pointed out that the availability of computer labs at the school, data show devices at the school, web-based learning content, Internet or Intranet at the school, smart boards at the school, virtual classrooms, interactive e-courses, learning management system, and personal computers for students' use. Harris et al. (2009) provided practical recommendations on adoption and implementation of blended learning. These recommendations include evaluation of blended learning in terms of cost effectiveness and student motivation and satisfaction, resources access and usability of blended learning system, adequate training for educational staff and students, learning outcomes, and technology. Credibility, accessibility,

flexibility, personalization, transparency, productivity, and interactivity are success factors that motivate students to participate in online and blended learning (Blieck et al., 2019). Course structure, emotional support and communication medium was identified by So and Brush (2008) as success factors of collaborative learning in a blended learning environment. In their paper in blending learning approaches, Alammery et al. (2014) identified three approaches: low-impact, medium-impact, and high-impact designs. In the first approach, the teacher adds extra activities to the existing course, while in the second one, the teacher replaces some activities in the existing course, whilst he or she in the high-impact design builds a new blended course. Apart from specific design, the authors identified some challenges in this regard such as teachers’ technological knowledge, inadequate compensation and incentives, lack of prior experience in teaching the traditional course, and teachers’ skills in designing e-courses

Factor 3 - Learning Outcomes

This factor has a load of 2.235. It includes a total of 4 items. Item 10 “Blended Mode of Learning motivates the learner to learn (.789)”, item 9 “Learner feels satisfy with the outcome of Blended mode of learning (.742)”, item 4 “Performance of Learner improves significantly in Blended Mode of Learning (.426) and item 5 “Learner take interest in blended mode of learning (.278)”. This is identified as third key factor of Blended mode learning. Lim and Morris (2009) supported this finding and highlighted that motivational and instructional variables alongwith the learners had significant effects on learning outcomes. Harris et al., (2009) provided practical recommendations on acceptance and application of blended learning which includes blended learning evaluation in terms of cost effectiveness, resource access, usability of blended learning system, student motivation and satisfaction, , adequate training for educational staff and students, learning outcomes, and technology.

Wu and Liu (2013) found a favorable association between student’s satisfaction and perceived usefulness, system learning atmosphere, system performance, perceived enjoyment, social interaction, , content specificity, performance expectation in blended learning. Motivation is observed as an outcome here because, cognitive factors like course grades and affective factors like intrinsic motivation may also be used to specify outcomes of learning (Kuo et al., 2013). Research highlights that high motivation as the key determinant in online courses (Menager-Beeley, 2004). Sankaran and Bui (2001) found that learners who are less motivated has poor performance in knowledge tests while learners with high motivation shows high performance in academics (Green et al.,2006). Kintu et al., (2016) indicated learner’s attitudes towards blended learning as important factors to the satisfaction of learner and motivation while managing the workload was considered as key factor to learners satisfaction and knowledge construction. Amongst all the features of blended learning, interaction with learner was a main factor to learner satisfaction and knowledge construction.

Factor Comparison

H₀₁ : There is no significant difference between the perception of undergraduate and post students with respect to Flexibility and Time Management in blended mode of learning.

The Z-test was carried out to compare the Flexibility and Time Management factor of blended mode of learning amongst postgraduate and undergraduate students. The Z-test revealed that p value is 1.67, which is less than 1.96, which indicates that H₀₁ is accepted at 0.5 percent level of significance (Table 4). It suggests that there is no substantial difference between undergraduate and post-graduate students with reference to Flexibility and Time Management. However, the mean grade for postgraduate students (M=13.8263) was higher compared to undergraduate students (M=11.2579). The finding of the study supported by Kaur (2013) who revealed that individualization, personalization increases through blended mode learning and the learners have better learning experience in blended mode of learning. There is no difference between undergraduate and postgraduate students with respect to flexibility and time management may be because flexibility and time management is the main characteristic of blended mode learning. In blended mode learning the learners have better control over learning and can manage the pace of learning accordingly.

Table 4: z-Test: Two Sample for Means

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	18.42	17.61
Known Variance	13.8263	11.2579
Observations	100	100
Hypothesized Mean Difference	0	
Z	1.617278792	
P(Z<=z) one-tail	0.052909058	

z Critical one-tail	1.644853627
P(Z<=z) two-tail	0.105818115
z Critical two-tail	1.959963985

H₀₂ There is no significant difference between perception of post graduate & undergraduate students with respect to Interaction and Instructional Materials with respect to blended mode of learning.

The Z-test was carried out to compare the Interaction and Instructional Materials factor of blended mode of learning amongst postgraduate and undergraduate students. The Z-test revealed that p value is -0.699, which is higher than -1.96, which indicates that H₀₂ is rejected at 0.5 percent level of significance (Table 5). It suggests that there is substantial difference between undergraduate and post-graduate students with reference to the Interaction and Instructional Materials Factor. However, the mean grade for postgraduate students was higher (M=7.1379) in compare to undergraduate students (M=5.6204). It may be because postgraduate students feel teacher's interaction is important for outcome. Through collaboration and interaction, they can do better online preparation. High achievers preferred blended format more in comparison to low achieving students (Owston et al., 2013).

Table 5 : z-Test: Two Sample for Means

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	13.61	13.86
Known Variance	7.1379	5.6204
Observations	100	100
Hypothesized Mean Difference	0	
Z	-0.699912264	
P(Z<=z) one-tail	0.241991049	
z Critical one-tail	1.644853627	
P(Z<=z) two-tail	0.483982098	
z Critical two-tail	1.959963985	

H₀₃ There is no significant difference between the perception of post graduate & undergraduate students with respect to Learning Outcomes in blended mode of learning.

Table 6: z-Test: Two Sample for Means

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	13.27	12.79
Known Variance	3.8971	5.0259
Observations	100	100
Hypothesized Mean Difference	0	
Z	1.606888678	
P(Z<=z) one-tail	0.054039395	
z Critical one-tail	1.644853627	
P(Z<=z) two-tail	0.10807879	
z Critical two-tail	1.959963985	

The Z-test was carried out to compare the Learner Outcomes factor of blended mode of learning amongst postgraduate and undergraduate students. The Z-test revealed that p value is 1.60, which is less than 1.96, which indicates that H₀₃ is accepted at 0.5 percent level of significance (Table 6). It suggests that there is no substantial difference between undergraduate and post-graduate students with reference to the Learner Outcomes. The finding is supported by Paul and Jefferson (2019) who showed no substantial difference in the performance of the student with respect to class, rank or gender between online and face-to-face. Daymont and Blau (2008) the learning of online learners, irrespective of class rank or gender are same in electronic interaction as well as in one-to-one interaction. Kemp and Grieve (2014) revealed that academic performance of students in face-to-face

and online learning are same. However, the present study highlights that the mean grade for postgraduate students was higher ($M=3.8971$) than the mean grade for undergraduate students ($M=5.0259$). The reason for this disparity may be the postgraduate students are mature, sincerer and take more interest in study.

Z-Test Two Sample for Means

H₀₄ There is no substantial difference between the perception of post graduate & undergraduate students with respect to learning outcomes in blended mode of learning.

The Z-test was conducted to compare the perception of postgraduate and undergraduate students in the blended learning set up. The aim was to find out that post graduate and undergraduate students do have same level perception towards blended mode of learning. The Z-test revealed that p value is 1.203, which is less than 1.96, which indicates that H₄ is accepted at 0.5 percent level of significance (Table 7). It suggests that there is no substantial difference between level of perception amongst undergraduate and post-graduate students in blended mode learning. However, the mean difference states that postgraduate student's perception is slightly higher ($M=45.3$) than undergraduate students ($M=44.6$).

The study conducted by Kazu & Demirkol (2014) compares between blended learning environments to find the difference between gender performance, academic achievement and grade dispersions. The study highlighted no substantial differences between the groups. Barnes (2017) found the significant difference among the different age categories, 18-24 years students feel that more learning occurs in Face-to-Face classes compare to online mode of learning. However, students above 30 years, who are more mature and self-motivated, found the online classes more suitable. No substantial differences was identified between male and female learners and different age groups i.e, young adults, middle-aged and above 45 years learners. (Coldwell, et.al, 2008). This suggests that probabilities for blended learning to be operative is high as it is free from gender or age differences.

Table 7: z-Test: Two Sample for Means

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	45.3	44.26
Known Variance	38.61	36.09
Observations	100	100
Hypothesized Difference	Mean 0	
Z	1.203297566	
P(Z<=z) one-tail	0.114430595	
z Critical one-tail	1.644853627	
P(Z<=z) two-tail	0.22886119	
z Critical two-tail	1.959963985	

Conclusion

The present study showed the perception of the students towards blended mode learning and highlights that blended mode learning is an effective learning. "Flexibility" is the important characteristic of blended mode of learning. Through this student can control their learning and developing skills. A blended mode of learning can be developed by give leverage in activities, assignments, and technology to develop and arouse the interest of students while increasing their engagement. The analysis highlighted three factors of Blended mode of Learning i.e., Flexibility and time management, interaction and instructional materials and learning outcomes. Blended learning is very important and emerging form of education, that provide benefits to both educators and students. It will provide more independence and increase the creativity of the learner.

Therefore, it can be concluded that blended learning can be a future of our education system if it is implemented by considering the need of the teachers and learners. Students are interested to see advanced blended learning model which helps them to enhance their outcome with flexibility, time management and high-quality instructional material. The new education policy (NEP) clearly mentioned that pay more attention to adopt a policy that is undeniably student centric therefore, necessary steps should be taken for adopting blended learning soon.

Suggestions & Implications

Learning experience in face-to-face learning and online learning is not always same. The instructors or teachers should create such an environment which engages and motivates the learners keeping in mind both the modes so

that in blended mode both the modes used gives same learning experience to the learners. In blended learning it can be ensured that technical subjects which require practical could be taught through face-to-face and on the other hand soft skills teachings could be done through online teachings. In blended mode of learning students might feel difficult to balance between face-to-face with online learning which could result in giving extra mental load to the students. So, the curriculum and the syllabus for blended learning must be created as per the needs of learners. At the initial stages the setup must be done keeping in mind both the learner's knowledge and instructor's experience.

A system must be developed where instant feedback is given to the learners about their performance by the instructors which would improve the interaction in blended mode of learning. Similarly, the learners could also give feedback about the teaching pedagogy in blended mode of learning. The present research study could help the educational institutes, universities, and colleges to understand the student's perception towards blended mode learning. The research could be used by teachers and instructors to understand blended mode of learning with its pros and cons. The present study could be used to understand the problems that could occur while implementing blended mode of learning in educational institutes.

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