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A Critical Review on Blended Learning Versus Traditional Lecture Method

Muhammad Hafeez[1*]
[1]Allama Iqbal Open University, Islamabad, Pakistan
**Correspondence: mh9589041@gmail.com*

ABSTRACT

From the beginning of the 21st century, the leaning strategies have been changed from traditional to information and communication based. A critical review of published articles about blended and traditional leaning strategies has been conducted to highlight the importance and significance of both the learning strategies. Thirty-six (36) research articles published in various databases in various disciplines have been selected for the review. The review of literature showed that in most of the studies, the blended learning strategy proved to be more effective learning strategy against the traditional lecture method. From thirty-six published articles reviewed, twenty-five studies showed a statistically more significance value in blended learning approach for academic achievement. So, on the basis of this study, it is strongly recommended that blended learning strategy must be applied to achieve high academic and professional results.

Keywords: Critical Thinking Skills, Creative Skills, Leaning Styles, Strategies, Planning

1. Introduction

Learning is a key element of education and an important element for the development of a country (Hafeez et al., 2020). Learning and education are interchangeable fields. In the 20th century, it was necessary to present physically for the teaching-leaning process but in this modern era of the 21st century, the inventions of information technology tools have totally changed the teaching-learning process. The application of information technology in the learning process is called digital learning or e-learning Arias et al., 2016).

The learning process depends on the learning strategy or method being used for learning (Ioannou & Iordanou, 2020). Various learning strategies have been stated in the literature (Jia et al., 2017; Senthamarai, 2018; Kohli et al., 2019; Safari et al., 2020). In the present scenario, the learning method or strategy which is being discussed in the literature is the blended learning method or strategy (Hrastinski, 2019; Yashwant et al., 2020). A lot of studies have been done to determine the significance of the blended learning method against the traditional lecture method (Bazelais & Doleck, 2018; Godlewska et al., 2019; Holbrey, 2020).

The traditional lecture method is one of the oldest learning strategies. It is a useful and economic learning strategy for transferring essential information and concepts before a large group of learners. Although the traditional lecture method has a lot of advantages but, evidence from various studies shows that this learning strategy is not very effective for the development of teaching-learning skills and critical thinking skills required for higher education particularly

in medical-related fields (Alamrani et al., 2018). This is the reason by which the traditional lecture method is stated as a teacher-centered learning strategy where information is transferred by the instructor and passively acknowledged by the learners (Samuelson et al., 2017).

Many scholars and researchers defined blended learning in different ways. Makhdoom et al. (2013) defined that blended learning as a flexible learning technique in which face-to-face and online learning are combined by integration of technology in the learning process. Eryilmaz (2015) suggested that the blended learning is a learning method in which face-to-face and technology-based learning are combined to increase the learning abilities of students and teachers. The classes may be conducted online in blended learning. Alzahrani (2017) defined blended learning as the capability of combined elements of the classroom by providing the sources for face-to-face and online learning. Albiladi & Alshareef (2019) stated that blended learning is an instructional strategy in which face-to-face and online learning are combined by reducing the classroom study hours. The main difference between blended and traditional learning strategies are shown in Table 1.

Table 1: Difference between Traditional and Blended Learning

Features	Traditional Learning	Blended Learning
Location	Physical Classes	At any place (Flexible)
Learning Approach	Face to Face learning	Face to face learning and online
Time for Learning	Time Specific (Not flexible)	Not specific time (flexible)
Technology Application	No Technology application	Necessary to use the technology

The researchers (Gecer, 2013; Kazu & Demirkol, 2014; Hrastinski, 2019) indicated that blended learning has positive effects on the learning process. By applying this method of learning the learners cannot only have learned more but, the learner's participation and interaction with teachers also increased. This strategy also gives enough time for students and teachers to clear their concepts. The difference between traditional and blended learning strategies is shown in Figures 1 and 2.

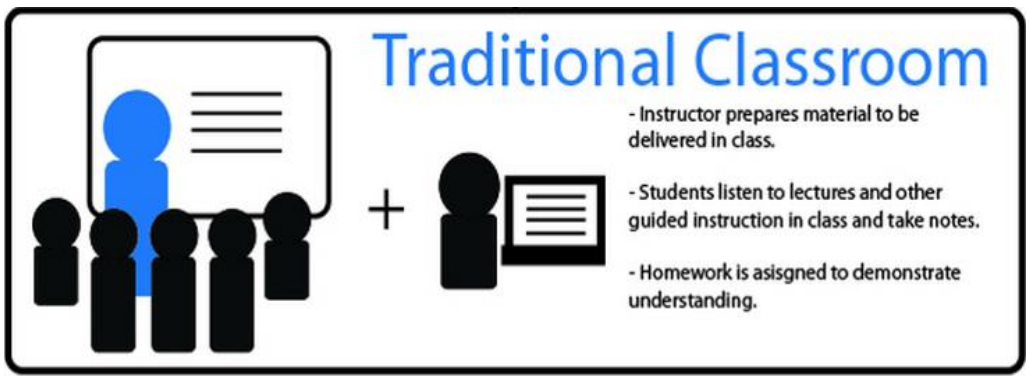

Figure 1: *Pictorial Concept of Traditional Learning Strategy*

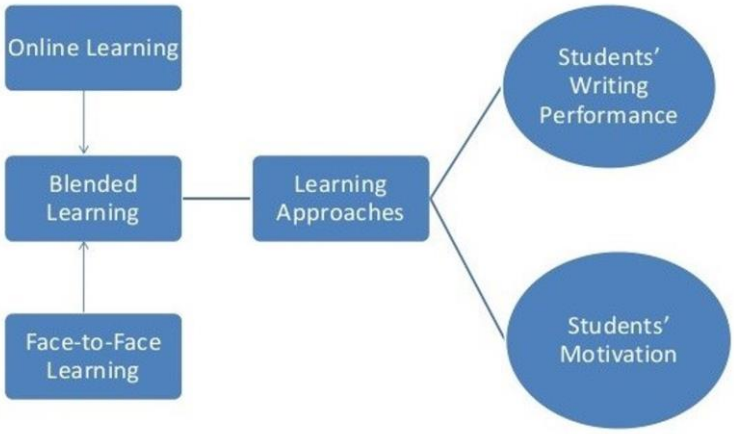

Figure 2: *Conceptual Framework of Blended Learning Strategy*

1.1 Purpose of the Study

Although devastating support in studies for extensive acceptance of the blended learning process, scholars are still facing difficulties in determining the most proper way to imply blended learning in the educational systems (Hockly, 2018). The objectives of this study are to critically review the previous researches about blended and traditional learning in various disciplines to highlight the challenges for the implementation of blended learning and possible solutions for challenges in blended learning in various disciplines.

2. Review of Literature

2.1 Traditional Lecture Method

A lecture teaching method is stated as in which the instructor continuously speaks before a group of students on a particular subject or topic. The group size may vary from 20 to 1000. The instructor is responsible for delivering the whole content of the subject matter. It is one of the oldest teaching methods used in schools, colleges and universities in various disciplines (Figurska & Sokół, 2016). The lecture method of teaching is grounded on the transfer of information from the instructor to the learners before the learners. The lecture method of teaching is also called traditional lecture or teaching method (White & Kern, 2018). Many instructors and researchers believe that the traditional lecture method is not more successful in the cognitive development of learners as the traditional lecture method is a passive method of learning. It does not involve the learners to contribute to the educational process. Usually, the instructor presents the whole lecture before the learners. The learners get the notes of the lecture and prepare them for the examination (Giorgdze & Dgebuadze, 2017). The major reason for adopting the lecture method of teaching is its ability to handle a large number of learners at a time (Marmah, 2014). The important characteristics of the lecture teaching method are highlighted in figure 3.

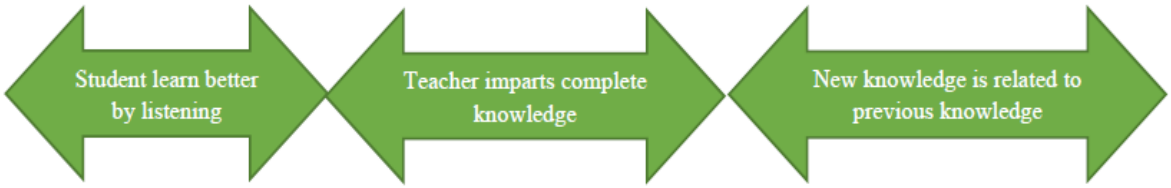

Figure 3: *Characteristics of Lecture Method of Teaching*

In the current age, the lecture teaching method is considered a boring method because it does not activate the students to take part in the learning process. However, it can be made effective by blending the information technology tools (Fulford & Mahon, 2018). Gooblar, (2019) argued that telling (lecture method of teaching) is an excellent method for the learners if is blended with information technology tools as in the lecture method, the instructor delivers all the contents with details.

2.2 Blended Learning Method

2.2.1 Background Development of Blended Learning

Mazur & Hilborn (1997) conducted an experiment to integrate the information and communication technology in the learning process. They found that the use of information technology and digital media in the classroom improves learners' engagement, critical thinking skills and learning abilities.

Blended learning is a conceptual learning process that involves the integration of information and communication technology into various instructional strategies in various disciplines (Owston, 2018). A lot of researchers have done researches to elaborate its effectiveness from grade one to higher education in various disciplines (Oliver & Trigwell, 2005; Nowell, 2011; Alseweed, 2013; Marchalot et al., 2018; Weldy, 2018; Zhang & Zhu, 2020) and proved to be one of the most dynamic learning methods in various disciplines. The important characteristics of blended learning are shown in figure 4.

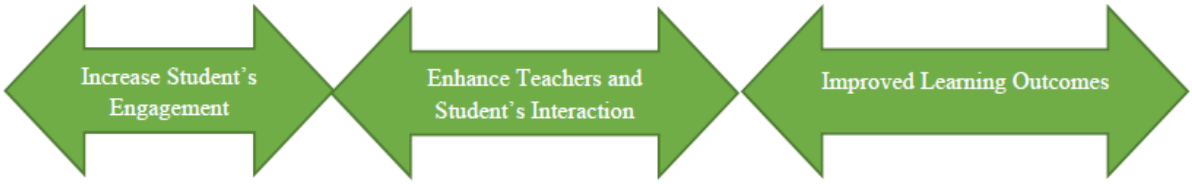

Figure 4: *Characteristics of Blended Learning Method*

Lu et al., (2018) suggested that blended learning is endorsed by various colleges and universities in various disciplines because of its positive results on students' academic achievement and critical thinking skills. Cuesta, (2012) suggested that the key objective of blended learning is to offer a platform for the learners according to their skills, styles and needs. Mukaddes Erdem et al., (2014) conducted research to know the opinion of learners about the implementation of blended learning. The consequences of the research indicated that the learners have positive feedback about blended learning.

2.2.2 Databases for the Selection of Research Publications for Review

There are a total of 36 research papers have been selected for the review. Twelve (12) research papers from the Elsevier database, 7 research papers from Springer database, 8 research papers from Wiley Online Library database, 5 research papers from Taylor and Francis database and 4 research papers from other databases have been studied and selected for the review. The selection process for review is shown in figure 5.

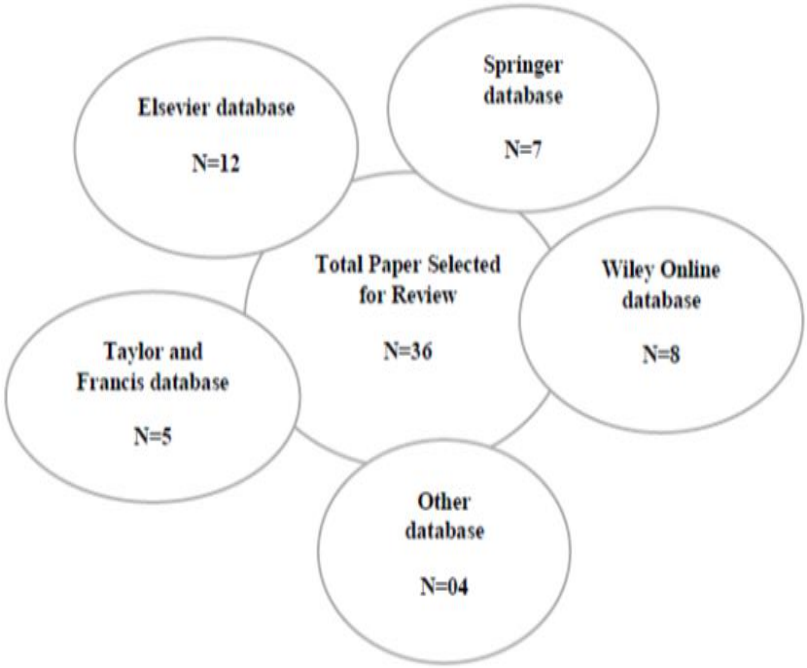

Figure 5: *Review Selection Process*

The learning outcomes of thirty-six published studies in various disciplines are illustrated in table 2. Most of the studies showed that the blended leaning has proved to be more effective and conducible environment created strategy in the classroom in various disciplines.

Table 2: Review Results of the Studied in Various Disciplines Reviewed in This Article

Reference	Class	Subject	Outcomes
Oderinu et al., (2020)	Undergraduate students	Dental Course	The study concluded that blended learning increased the learning skills of students significantly.
Choi, Lindquist, & Song, (2014)	Undergraduate Nursing students	Psychology	The Blended learning process improved the learning outcomes as compared to the traditional learning approach, but no significant difference has been found.

Miller, McNear, & Metz, (2013)	Undergraduate students	Physiological course	The consequences of the study indicated that the learners performed 8.5% better by applying blended learning approach. The learning method also increased the comprehension skills of the learners.
Delialioğlu, (2012)	First semester Undergraduate students	computer networks course	The blended learning strategy increased the student's engagement and critical thinking skills.
Khalid & Azeem, (2012)	Secondary school students	Biology	The study indicated that blended learning significantly increases the students' academic achievement and problem-solving abilities.
Gholami et al., (2016)	Third year nursing students	Critical Care Nursing	The results of research showed a significance of Blended learning. The study also revealed that the modern learning approaches improve the students learning abilities and critical thinking skills.
Frame et al., (2015)	First year Pharmacy students	Different pharmacy courses	The students suggested that the blended learning approach is a problem-solving approach as it increased the student's problem-solving abilities. They preferred blended learning approaches over traditional lecture method.
Hyun, Ediger, & Lee, (2017)	Undergraduate student	Education course	The students performed better in blended learning method and called it as an active learning method. This method improved the students thinking, communication and engagement skills.
Jusoh et al., (2016)	Graduate Students	Philosophy	The results of the study indicated that the students scored better grades in integrated computer learning over the traditional lecture method. The students

			reported that blended learning approaches improves the understanding level, communication skills, active learning in classroom, sharing of results among the students and opportunity to help the other classmates.
Meguid & Collins, (2017)	Undergraduate students	Dental curriculum	The conclusion showed that the blended learning approach helped the learners to be motivated and more attentive towards their learning.
Huggins & Stamatel, (2015)	Undergraduate students	English communication course	No significant differences have been found by applying the blended learning and traditional lecture methods.
Blissitt, (2016)	Undergraduate baccalaureate nursing programs	Pathophysiology courses	The results of the study indicated that statistically no significance difference have been found between the two learning approaches.
Montassier et al., (2016)	Fifth-year medical students	Medical courses	The study concluded that both the leaning approaches have the same effects on the students' learning abilities, critical thinking skills and interaction skills.
Luna & Winters, (2017)	First year students	Physics	The blended learning approach improved the students' academic achievement. However, statistically no significant difference has been found between the blended and traditional learning approaches.
Shi et al., (2017)	8^{th} grade students	Mathematics	The results of the study indicated that integrated web-based learning approaches increased the students higher order thinking skills and academic level of the learners. A large significant difference has been found between the integrated

			web-based learning approach and traditional lecture method.
Arias et al., (2016)	Undergraduate Dental students	Dental courses	The students learnt more in blended learning method and scored better academic results.
Adams, Randall, & Traustadóttir, (2015)	Undergraduate students	Microbiology course	The students performed better in traditional learning method. No statistical differences have been found between the blended and traditional learning approaches.
Khatiban et al., (2019)	Nursing students	Patient care course	The results of the study concluded that blended learning approach increases the moral values in the learners. The blended learning method showed a statistically significance difference from the traditional learning method.
Wong & Ng, (2016)	Electronics Engineering	Fundamentals of Operational Amplifier.	It was concluded in a study that the blended learning approach significantly increases the academic achievement of the learners as compared to the traditional learning method.
Lochner et al., (2016)	Anatomy Students	Anatomy courses	The research concluded that students appreciated the online learning. Their confidence and motivation also improved by online learning process. However, no significant difference has been found between the learning methods applied for learning process.
Daud, Chaudhry, & Ali, (2016)	Fourth year MBBS students	Community Health & Nutrition course	The results indicated that blended learning process increases the efficacy of learners in learning process. The learning method used in the study also increased the academic achievement of the learners. However, no significance differences have been found

			between blended and Traditional lecture strategies statistically.
Dehghanzadeh & Jafaraghaee, (2018)	Second-year Bachelor's Nursing students	Musculoskeletal Medical-Surgical Nursing course	After applying the blended learning approach, the grades of the learners improved, and their critical thinking skills also improved. Statistically, a great significance differences have been found between the blended and traditional learning approach.
Jong, (2016)	10th grade	Stoichiometry course	It is concluded in this study that application of modern learning approaches increases the learning abilities of the learners. The learning approaches used in the study has a great significance difference.
Bazelais & Doleck, (2018)	College students	College Mechanics course	The results of the study concluded that the learners in blended learning classroom performed better. The students developed their concepts in the blended learning. A large significance differences have been found between the blended learning and traditional learning approach.
Farashahi & Tajeddin, (2018)	Undergraduate students	Business Education	The study concluded that blended learning approach is the most active learning method. This method improves the critical thinking skills, communication skills and conceptual abilities. Statistically, a great significance differences has favoured the blended learning approach.
Asarta & Schmidt, (2017)	8th Grade Students	Collegiate course	The results of the study indicated that statistically no significance differences have been found between the blended learning and traditional learning

			approach. In both learning strategies, the students got the same academic grades.
Ilic et al., (2015)	Medical students	Clinical training	The results of the study indicated that blended learning approach has no effect in the medical education. The traditional lecture method is better than blended learning approach. No statistical significance has been found in this study.
Nalini et al., (2020)	2nd year MBBS students	Clinical Course	The study concluded that the integration of blended leaning in education system significantly improved the learning process, students critical and creative skills. The blended learning approach proved to be better as compared to the traditional leaning approach.
Baker, (2018)	Undergraduate students	Education Courses	The results of the study revealed that both learning approaches developed the same learning achievement. No statistically significant differences have been found between the blended learning and traditional learning approaches.
Guarascio, Nemecek, & Zimmerman, (2017)	Undergraduate	Clinical Pharmacy	The results indicated that the blended learning approach and traditional learning approach has no statistical significance. Both methods are useful under various learning conditions and environments.
Abedi, Keshmirshekan, & Namaziandost, (2019)	Intermediate	English	The students learnt by blended learning approach has better academic achievement. Statistically a large significance differences have been found between the blended and traditional learning approaches.

Sheikhaboumasoudi et al., (2019)	Nursing student	Fundamentals of Nursing Course	The findings of the research indicated that the students achieved higher academic achievement in blended learning approach.
Tseng & Walsh, (2016)	Undergraduate	English Literacy Course	Blended learning approach significantly improved the learning abilities of the learners and proved to be best teaching and learning approach.
Furió et al., (2015)	Primary students	Computer studies	The consequences of the study indicated that the blended learning improved the students' academic achievement significantly than the traditional lecture method.
Scott et al., (2016)	Undergraduate students	Calculus	The blended learning strategy proved to be better strategy than traditional lecture method. The study also concluded that blended learning approach increases the self-efficacy of the learners.

The statistical results of studies of various disciplines reviewed are shown in table 3. The results showed that in most of the studies, the blended learning strategy has more significant value than form the traditional learning strategy.

Table 3: Statistical Results of the Studied in Various Disciplines Reviewed in This Article

Reference	Learning Method	Mean	SD	p	Remarks
Oderinu et al., (2020)	Blended	3.75	0.50	0.004	Significant
	Traditional	3.42	0.56		
Choi, Lindquist, & Song, (2014)	Blended	1.02	0.79	0.071	Significant
	Traditional	1.63	0.39		
Miller, McNear, & Metz, (2013)	Blended	87.25	2.18	0.021	Significant
	Traditional	78.66	5.58		
Delialioğlu, (2012)	Blended	33.33	2.234	0.015	Significant

	Traditional	26.07	1.948		
Khalid & Azeem, (2012)	Blended	80.50	7.26	0.01	Significant
	Traditional	74.11	7.09		
Gholami et al., (2016)	Blended	2.76	0.67	0.003	Significant
	Traditional	2.31	0.92		
Frame et al., (2015)	Blended	5.42	1.72	0.041	Significant
	Traditional	4.78	2.05		
Hyun, Ediger, & Lee, (2017)	Blended	1.25	0.23	0.021	Significant
	Traditional	1.02	0.52		
Jusoh et al., (2016)	Blended	3.45	0.45	0.011	Significant
	Traditional	3.15	0.67		
Meguid & Collins, (2017)	Blended	7.98	0.91	0.023	Significant
	Traditional	6.75	1.21		
Huggins & Stamatel, (2015)	Blended	1.89	0.76	0.071	Non-significant
	Traditional	2.12	0.61		
Blissitt, (2016)	Blended	45.4	3.54	0.089	Non-significant
	Traditional	56.7	3.23		
Montassier et al., (2016)	Blended	36.34	5.79	0.081	Non-significant
	Traditional	36.21	5.82		
Luna & Winters, (2017)	Blended	6.23	2.13	0.097	Non-significant
	Traditional	6.12	2.01		
Shi et al., (2017)	Blended	4.47	1.02	0.026	Significant
	Traditional	3.67	1.23		
Arias et al., (2016)	Blended	34.76	2.36	0.005	Significant
	Traditional	30.21	3.10		
Adams, Randall, & Traustadóttir, (2015)	Blended	10.79	2.10	0.085	Non-significant
	Traditional	11.23	1.87		

Khatiban et al., (2019)	Blended	17.56	1.09	0.012	Significant
	Traditional	16.45	1.21		
Wong & Ng, (2016)	Blended	21.23	4.78	0.002	Significant
	Traditional	20.19	4.89		
Lochner et al., (2016)	Blended	41.21	2.78	0.067	Non-significant
	Traditional	42.11	2.74		
Daud, Chaudhry, & Ali, (2016)	Blended	15.34	1.75	0.094	Non-significant
	Traditional	15.20	1.69		
Dehghanzadeh, & Jafaraghaee, (2018)	Blended	33.32	2.34	0.0001	Significant
	Traditional	25.62	3.35		
Jong, (2016)	Blended	1.21	0.37	0.039	Significant
	Traditional	1.09	0.41		
Bazelais & Doleck, (2018)	Blended	1.67	0.39	0.020	Significant
	Traditional	1.12	0.65		
Farashahi & Tajeddin, (2018)	Blended	19.25	3.25	0.048	Significant
	Traditional	17.32	4.12		
Asarta & Schmidt, (2017)	Blended	1.29	0.32	0.071	Non-significant
	Traditional	2.11	0.21		
Ilic et al., (2015)	Blended	15.16	0.99	0.069	Non-significant
	Traditional	14.99	0.79		
Nalini et al., (2020)	Blended	1.23	0.37	0.001	Significant
	Traditional	1.02	0.42		
Baker, (2018)	Blended	3.37	0.98	0.0087	Non-significant
	Traditional	3.29	0.91		
	Blended	45.34	5.43	0.098	

Guarascio, Nemecek, & Zimmerman, (2017)	Traditional	44.23	5.12		Non-Significant
	Traditional	72.87	8.91		
Abedi, Keshmirshekan, & Namaziandost, (2019)	Blended	9.21	1.34	0.0032	Significant
	Traditional	8.92	1.57		
Sheikhaboumasoudi et al., (2019)	Blended	2.34	0.24	0.011	Significant
	Traditional	1.98	0.62		
Tseng & Walsh, (2016)	Blended	3.81	0.61	0.045	Significant
	Traditional	3.51	0.43		
Furió et al., (2015)	Blended	1.29	0.23	0.023	Significant
	Traditional	1.10	0.31		
Scott et al., (2016)	Blended	2.31	0.87	0.032	Significant
	Traditional	2.02	0.99		

3. Discussion

Hattie (2018) pointed that the single most important factor that affects the learners' learning is the method and quality of teaching the learners receive. Information and communication developments have also changed the way of teaching-learning systems. Blended classroom learning has become an effective learning approach in the current educational systems (Kerzic et al., 2018). The importance of blended learning has been proved by many researchers (Surjono, Muhtadi, & Wahyuningsih, 2017; Ilyashenko et al., 2019; Suryanti et al., 2020).

Aristovnik et al., (2017) stated that blended learning is an effective way of learning as it eliminates distance. This is also computer-based or mobile-based learning. Blended learning used multiple forms of information and communication technology. Harandi, (2015) pointed that the blended learning approach is an integrated form of traditional learning. It is established to educate the learners at every stage of learning.

A review study has been conducted to highlight the importance of blended versus traditional lecture learning. Most of the studies reviewed in this article showed that blended learning proved to be one of the most effective and dynamic learning strategies in the educational system. Most of the studies reviewed have significant effects on academic achievement, critical thinking skills and creative skills more than that of traditional learning method.

3.1 Challenges in Implementing Blended Learning Strategy

The review of literature done in this article for the implementation of blended learning has brought four types of challenges before the researchers namely (i) Issues related to the instructors (ii) Issues related to the students (iii) Technological issues (iv) University or institutional issues. The traditional culture of the institutions is the most important issue for the implementation of a blended learning strategy.

The teachers have also some issues related to blended learning like lack of skills to integrate blended learning, increased workload and finding the right blending strategy for the different curriculum (Hussain, Shahzad, & Ali, 2019). On the basis of previously published literature, it has been observed that teachers' workload is the most crucial challenge for the instructors. In blended learning strategy, sometimes the instructors require more time to upload the learning materials and evaluate the learners' work online (Banyen, Viriyavejakul, & Ratanaolarn, 2016). The lack of technological and pedagogical skills in the instructors is also a great challenge for the implementation of the blended learning strategy (Charbonneau-Gowdy, (2018). The student's issues related to blended learning are participation in the blended learning process, internet issues and login issues (Surjono, Muhtadi, & Wahyuningsih, 2017).

3.2 Solutions or Recommendations to Solve the Challenges in Blended Learning

Several solutions have been proposed in the literature for the implementation of blended learning. Proper planning is required to implement the blended learning strategy at the institutions level (Masood & Yousuf (2018). The teachers and students must have enough training to implement blended learning in the classroom.

The teachers and students must provide a high-speed internet facility to implement the blended learning strategy. The institutions must change their culture of traditional learning strategy.

4. Conclusion

A critical review study has been conducted on blended and traditional learning approaches. Thirty-six (36) articles published from 2012-2020 in various databases have been selected for the critical review of previous literature. Their statistical results are also highlighted to check the significance of the studies. The review showed that in most of the studies, there were significant differences in academic achievements among the learners learned by traditional and blended learning approaches. The blended learning approaches proved to be a more effective strategy in the literature review. So, on the basis of previous literature, it can be concluded that blended learning strategy is a more effective learning strategy as compared to the traditional learning strategy.

Conflict of Interest

The authors declared that they have no conflict of interest.

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