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Blended Learning: An Innovative Pedagogy in Teaching and Learning Process

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ABSTRACT

Today's young generation has been raised in a world of science and technology with instant access to knowledge and information just at the click of the mouse button. India is a land of great diversity with students coming from different socio-economic backgrounds. It is because of this diversity in social background of students, parents and their economic conditions, the only alternative solution available to us is to provide a common platform of teaching learning resources that is available to the students throughout the country. For maintaining standards in providing quality education to the students from both urban and rural areas there must be some network, which provides quality education to all students. Now the time has come that our country should look out for some innovative pedagogies especially blended learning, for the students who are under stress and confined to their homes and are not able to attend their regular classes in schools due to the global pandemic in all the countries related to corona virus. The solution to this problem is integration of mixed pedagogy combining the advantages of both face to face instruction as in traditional classroom settings with the benefits of online instruction, an innovative pedagogy which is known as Blended Learning. India is well placed at the dawn of information and technology era. For India to become a knowledgeable society, it has to be a learning society first. For lifelong learning, it is not only the settings of formal education that are important, but also the settings of home, the work place, the community and the society at large are important. Since both e-learning as well as traditional classroom instruction have some strengths and weaknesses, it was therefore considered that it will be much better to combine the strengths of both learning methods to develop a new method of delivery called Blended learning which is most suitable method for teaching the students through online mode using Google Meet and Zoom apps as well as for the professional growth of faculty members of various universities and college by attending online webinars and e- symposiums especially under these lock down conditions. The research has shown that web 2.0 technologies have enabled universities to implement distance education to reach more diverse populations and increase the availability of web-based learning environments. The web holds several advantages over traditional learning. The web allows interactive delivery with multimedia content that helps overcome the limitations of traditional resources.

Key Words: E—learning, Blended learning and Web 2.0 technologies

INTRODUCTION

E-Learning stands for electronic learning which means learning through electronic media. It refers to a form of learning in which the teacher and students are not closely confined to the four walls of the classroom but are at a distance apart and this gap is filled by the use of

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technology. E-Learning involves teaching and learning that utilizes web 2.0 technologies for information and communication in the present educational scenario. Thus, E-Learning can be defined as an approach to facilitate and enhance teaching learning process supported by information and communication technology (ICT) to improve the quality of teaching and learning. Simply we can say that E-Learning is computer facilitated on line learning where the student and teacher either interact on line or off line. Due to the growing popularity of Internet, the traditional classroom has been transformed into E-Classroom where a single click of mouse & touch of finger can do wonders in teaching learning process **(Shamshir Singh & Ranjit Kaur, 2015).**

E-learning is divided into different types ranging from web-supplemented courses, through web dependent to mixed mode courses and finally to fully online courses **(OECD, 2005).** One of these methodologies is Blended learning**.** With the use of Blended learning technique, the teacher gains complete attention and interest of every child in class. Every child gets exposed to a mixture of traditional method as well as visual understanding the concepts through online lectures, videos and animations related to their topics and this blend of both the traditional as well online lectures and videos related to topics of Science, Math's, Geography and Social Sciences results in faster and accurate understanding of the concepts in the class and helps in improving the overall academic performance of the student's.

1.1.DEFINITION OF BLENDED LEARNING

Procter (2003) defined blended learning as 'the effective combination of different modes of delivery, models of teaching and styles of learning'. Blended learning also synonymous with other names such as mixed, sandwich, hybrid learning, is a method that complements traditional learning environments and which involves teachers and technological based e-learning environments (Ayala, 2009; Young, 2002; Valiathan, 2002). For integrating blended learning into traditional classrooms, the educators need to think about the skills that are to be taught, learning resources, time and cost.

Rovai and Jordan (2004) stated that blended learning is a mixture of online learning and classroom that integrates some of the components of online courses with the presence of face-to-face communication in the classroom by the teachers. Other researchers believed that the method called blended learning integrates face-to-face instruction with computer mediated one (Graham, 2006; Stubbs, Martin & Endlar, 2006; Akkoyunlu & Soylu, 2006). Chew, Jones and Turner (2008) state that 'blended learning involves the combination of two fields of concern: education and educational technology'.

The main goal of blended learning was to provide an alternative strategy to overcome the drawbacks of pure online learning. Since both e-learning as well as traditional classroom instruction have some strengths and weaknesses, it was therefore considered that it will be much better to combine the strengths of both learning methods to develop a new method of delivery called Blended learning (Azizan, 2010).

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The application of blended learning environment has quickly increased in the educational institutions because teachers are of the opinion that by providing a variety of methods of instruction, they can increase students' satisfaction from the learning experience as well as their learning outcomes (Lim, & Morris, 2009). Picciano (2006) reported that there were two significant elements in defining blended learning and those were online learning and face-to-face interaction with in the classroom.

2.0. REVIEW OF RELATED LITERATURE

Koch's (2014) research looked specifically at how online learning transformed the instructor-centered traditional classroom into a student-centered classroom. Koch feels that blended learning moves the responsibility of learning to the student and significantly changes the role of the instructor. The participation of the instructor becomes more valuable in the online environment, and therefore they should not assume a passive and nondirective role in their teaching or their students' learning. The instructors should therefore play their role sensibly in ensuring a high-performance rate with their students in both the face-to-face and online environments of the course as this can influence learning in various ways.

Akhila (2013) reported that focused treatment with a Blended Learning Package has enhanced the achievement of students of experimental group in Mathematics than the constructivist approach of instruction. The high performance of experimental group over control group reveals that the Blended Learning Package is more effective than constructivism method. So the quality of teaching Mathematics and the students' achievement could be improved by utilizing the blended learning package and this could definitely help the students in increasing their retention of knowledge and developing and sustaining interest in Mathematics.

Wani et al (2013) compared the effectiveness of blended learning with the traditional class room teaching. The study also focused on the student's views and perceptions regarding the two knowledge delivering systems. The findings of the study revealed that the integration of blended learning has a better impact on student's performance. The study also showed a better acceptability of blended learning among the students thereby justifying the need of incorporating blended learning in medical curriculum in India on a broader basis.

Karamizadeh et al. (2012) studied the efficacy of medical education by adoption of blended learning approach. It was found that the post test scores were significantly more than the pretest ones. There was a significant correlation between the students' accessibility to computer and their attitude and satisfaction to blended learning approach.

Yapici and Akbayin (2011) examined the effect of blended learning model on high school students' achievement in the subject of biology and on their attitudes towards the internet and found that the blended learning model contributed in greater achievement in biology as compared to traditional teaching methods and that the students' attitudes improved a lot towards the Internet.

Colm Fearon, Simon Starr and Heather McLaughlin (2011) in their study about value of blended learning in university found that blended learning approach was preferred by the

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students because of its flexibility. The BL approach provided benefits to the students in terms of flexibility sharing of ideas; motivation, class room interaction and provision of better opportunity for explanation of ideas, communication and developing project leadership skills in collaborative settings.

Badawi (2009) stated that blended environment offers an alternative solution and opportunity for both the traditional classrooms and the online interaction. The BL method provides a range of delivery methods to meet the course objectives. The advantages of using blended learning are improvement in communication skills, engagement of face-to-face communication, sense of community, improved academic performance, flexibility in collaborative tasks, adequate feedback, active participation of the students thus making teaching learning process more enjoyable and lively activity as compared to monotonous and dull traditional method of teaching and learning.

Korkmaz and Karakus (2009) investigated the influence of Blended Learning model on the attitude of students towards subject of Geography and the findings of the study showed the positive development of student attitudes toward geography course using blended learning model as compared to the traditional interaction and there was a positive correlation between student attitudes toward geography and their critical thinking dispositions.

Kyong Jee Kim, Ya-Ting Teng and Curtis J. Bonk (2008) in their study on incorporating Blended Learning Trends in Workplace settings surveyed employees from five different countries about the current status of blended learning in their respective organizations. The view of majority of participants was that an increase in the accessibility of learning, improvement in the quality of learning experience and reduction in the cost were the main factors for adopting blended learning in their organizations.

Delialioglu and Yildirim (2007) in their study reported many problems in purely online instruction approach like hardware, software, time, money as well as pedagogical problems. This led to the emergence of idea of mixing face-to-face interaction with the benefits of online courses, known as blended learning. Teachers can now support their own courses by posting online assignments, instant online feedback and creating more interesting, enjoyful learning environments through the use of multimedia.

Graham (2006) in his book titled “Blended learning systems” suggests that there were primary reasons for adopting a blended approach to instruction which were basically improved access to learning materials by the students, flexibility, and better cost-effectiveness. BL can be used to ‘foster learning communities, access guest experts, provide timely mentoring, present online lab or simulation activities and deliver supplementary course learning materials’.

Alonzo, Lopez, Manrique, & Vines (2005) reported in their study about blended learning that, videoconference learning if employed in the same fashion as a traditional classroom negates the need for the learners and instructor to be physically together. Videoconferencing technique allows participants from different locations to interact with instructors and other trainees. Live e-learning takes place in a virtual classroom. Further, learners can collaborate, share information, and ask questions from one another and the instructor in real time.

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Dziuban, Hartman & Moskal (2004) in their findings reported that the majority of the participants were of the opinion that blended learning has encouraged them to establish relationships with other participants and BL has provided them good opportunity for working in collaborative settings. From the findings of the study it was observed that blended learning approach is likely to emerge as the predominant instructional model in the future. Dziuban quoted that "blended learning represents a pedagogical approach in which the effectiveness and socialization of the classroom are combined with technologically advanced learning which is possible through the online environment".

Garrison and Kanuta, (2004) investigated in their study the result of integration of BL into traditional classrooms which could prove to be a vital force of bringing transformation in delivering instruction by teachers and faculty members in colleges and universities. The findings of study indicated that blended learning pedagogy provided much better opportunity to the students for better interaction with the teachers and the peer group.

Rovai & Jordan (2004) in their research study examined the influence of three delivery methods of instruction i.e. traditional classroom, blended, and fully online course formats on the student community. The results of the study showed that blended courses were found to be more useful in student engagement and resulted in better academic achievement scores than the traditional or fully online course.

Cottrell and Robinson (2003) in their study reported that by using the blended learning approach there was reduction in the classroom time of the students and interaction between the faculty members and students as well as peer group was greatly improved. It was also found that there was also significant increase in the enrollment number of the students in a given academic program with the implementation of blended learning approach along with the traditional method of instruction.

Dowling et al. (2003) investigated the association between the two methods of delivering the instruction i.e. traditional face-to-face and hybrid flexible delivery and learning outcomes of students. The findings of the study indicated improved learning outcomes among the students with the integration of blended learning approach.

Valiathan (2002) in his study found that skill-driven learning activities which focused on giving training in specific set of skills, designing of learning activities for bringing positive change in attitudes of the students and the use of appropriate support tools for effective blending along with mentoring were three major categories of blended learning approach which were required to improve and develop workplace competencies among teachers and students.

King (2001) in his study found that the depth of insight and conceptual clarity developed in participants in blended learning method of delivery was higher than face-to-face classroom and the blended learning approach provided the environment for the development of critical thinking, improved peer-to-peer interaction and increased interaction between the teacher and the students. The hybrid model also provided the students much needed platform for creative and interactive course assignments.

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The researches in the field related to effect of blended learning in India are very scarce so the researcher took the opportunity to study this topic in the Indian context. As it has been mentioned that no investigator has so far undertaken a study to assess the effectiveness of blended learning method in science education therefore the present study has been taken up by the investigator.

3. OBJECTIVES

Following were the objectives of the present study

- To understand the pedagogy of blended learning
- To get an overview of blended learning.
- To find out the various benefits and challenges of blended learning from the overview of studies on blended learning.

4. METHODOLOGY

The present study was descriptive in nature, based on the secondary data. The paper focused especially on the past studies done in the field of Blended learning and on the basis of those studies tried to understand and get an overview of the pedagogy of Blended learning and on the basis of review of related literature found out the various benefits and challenges involved in the implementation of Blended learning pedagogy in traditional classroom settings.

5. MODELS OF BLENDED LEARNING

In Blended Learning there are a range of teaching strategies that combine face-to-face instruction with online learning programs. Each of these blended learning models utilize the principles of educational technology to provide a pattern involving varying degrees of integration between the use of interactive software and face-to-face engagement. Staker and Horn (2012) focused on four models of pedagogy of Blended learning i.e. the rotation, flex, self-blend and enriched virtual models. The detailed description of these models is as follows

1. ROTATION MODEL:

This model involves participation of students in a number of activities including whole-group instruction, small group instruction, peer-to-peer interaction as well as individual work on a computer or tablet. Within the rotation model, there are several different settings such as:

a). Station- Rotation Model:

The activities in a station rotation model typically occur within a defined, single space with students moving from station to station within fixed intervals of time period. The size of class in rotational models is often large than most of the schools using traditional modes of instruction. The student-to-teacher ratios typically ranges from 4:1 to 8:1 in station rotation mode of instruction thereby enabling the teacher to give more individualized attention to each student as compared to traditional mode of delivery. The students have to undergo a cycle of activities in the classroom (or classrooms) during the lectures for fixed interval of time with at least one of

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these activities including online instruction. The face-to-face interaction comprises of moveable tables and chairs that can accommodate between 4 to 8 students and a teacher. These small group stations may make use of interactive white boards to facilitate the classroom interaction. Most commonly one station in the rotation is designed for the use of digital media such as laptops or iPads.

b). Lab Rotation Model:

Lab rotation is different from station rotation because in this setting the students have to move from one room to another room. The lab rotation environment is like that of conventional computer labs, but the activities undertaken are distinguished by the individualization of the instruction. The students are allocated individualized assignments through online instruction in a computer lab and they can even submit their assignments through online mode. The teacher evaluates the progress of students' through online mode and can even send the feedback regarding students' progress to the parents of the students if he is not getting proper grades in the assignments.

c). Individual Rotation Model:

The individual rotation is different from station rotation or lab rotation in that each student may have an individualized time schedule. The students in individual rotation participate in only those stations that are focused to meet their specific needs or specialization in a particular field. The infrastructure setting of the schools using this model is typically different from the brick and mortar traditional class room setting. In this setting there are several workstations which are surrounded by a variety of spaces, where teachers and students can meet for direct, face-to-face instruction.

d). Flipped Classroom Model:

In the flipped classroom model the learner accesses content material posted by the teachers in his home environment asynchronously, off-site, and outside of the school campus. The content is accessed by the student at home prior to coming in the class so that the class time can be used in active engagement for performing of activities or practical's related to the curriculum either in small group or large group collaborative settings. The FL model is focused on helping the students to achieve a deeper understanding of the subject matter. The students receive their primary instruction in the form of online lectures at home and then students apply their skills in completing assignments and projects allocated to them during class time with the teacher's support i.e. complete reversal of the conventional classroom setting and hence termed as Flipped classroom.

2. **Flex Model:**

The Flex model combines the advantages of both individual and face-to-face interaction with the teacher whenever the situation demands. Hence this model provides opportunity to the students to work at their own pace and the advantage of face-to-face interaction with the teacher to enhance their understanding of the subject matter and for better clarity of the concepts. The

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environment of the flex model comprises of an individual workstation for each student with convenient small group meeting space. The flexibility of mixing of online instruction along with traditional method is the main pillar of the course or subject with the support from the teacher where ever necessary is the chief component of the Flex model. Students' path of learning is flexible and the support provided by teacher can vary based on each school's implementation model.

3. **Self- Blend Model:**

Self- Blend approach involves delivering a portion of a student's curriculum online by the faculty and these online courses will supplement the courses delivered using traditional methods and modes (e.g., in person seminars, lectures and labs). "Cyber lounges" arrangement can be made on the part of the school within the school campus where students can work individually using online media.

4. **Enriched Virtual Model:**

In Enhanced Virtual blended learning model major part of the curriculum is delivered online asynchronously and this is followed by face-to-face interaction with teachers and students in more traditional classroom settings. The students are not required to visit the school campus every day. The settings required are provision of rooms for seminars, classes and labs for using online resources. Students complete the majority of their coursework in their home settings and come for interaction with the teacher only when the need for face to face interaction is felt by the students.

6. **Benefits of Blended Learning**

The schools can derive a lot of benefit with the integration of BL method for learning into conventional classroom settings. Due to the availability of learning material and notes on the school web site, there is reduction in the cost of photocopying and taking of print outs by the students. (Gould, 2003, p.55). According to Bowen (2006), technology can serve as a vital role to free instructors from using class time to cover content in the classroom. With the ever growing use of ICT in the educational setting, blending learning approach can serve as an efficient tool to supplement face to face interaction in traditional classroom setting. (Ginns & Ellis, 2009). In addition, blended instruction provides an active learning environment to the students with flexible approach in accessing learning resources and provides a platform to the faculty members to have interaction with learners in small groups or even individually (Oh & Park, 2009).

Besides, blended learning has a vast potential to change the attitudes of the students and their outcomes through teaching. (Davis & Fill, 2007). The use of new and innovative communication technologies not only improves access of students to learning but it also energizes students 'attitudes towards learning (Alexander, 2010).Therefore the Blended courses are becoming increasingly popular among the students and the faculty members at various institutions where they are being offered. (Olson, 2003 cited in Drysdale, Graham, Spring, and Halverson, 2013 and Kaleta, Garnham, and Aycock, 2005). Another benefit of blended learning environment is its potential to offer a variety of learning resources for learners. Azizan (2010) reported that integration of technology in conventional classroom not only provides extra learning resources

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for the students but also enhances confidence and competence in the students as well as brings improvement in the quality of teaching and learning.

Chen and Jones (2007) also reported various other advantages of blended learning such as in depth understanding of subject matter by using web-based resources as well as healthy interaction between teachers and taught in the class. The online learning engagement also provides a platform for communication among teachers and students in the classroom and may provide an opportunity to facilitate collaboration between the peer groups even beyond the classrooms (Yuen, 2010).

7.0. Challenges

The lack of access to educational technologies and innovations (digital divide) among the students and the faculty continues to be a challenge with use of novel and innovative educational technologies (Fairlie 2004; Jones et al. 2009). Since blended learning involves an extensive use of technical resources therefore these tools need to be reliable so that they can be conveniently used by teacher educators (Garrison & Kanuka, 2004). In addition a significant barrier may be imposed by lack of ICT skills among the students and lack of availability of technical staff in the school may be another significant barrier in the implementation of blended learning. (Alexander, 2010).

The lack of immediate response both by the teachers and students as compared to the face-to-face classroom instruction by the teacher is another barrier in the path of pedagogy of blended learning. Because of the connectivity problem, sometimes students feel that they cannot interact with the teacher in a blended setting which results in the loss of their sense of classroom community (Vonderwell, 2003). Because of the problem of digital divide the teachers may also lack the required ICT competencies and the knowledge required for delivering instruction online and assigning grades for evaluation of the assignments posted by the students for the purpose of grading and evaluation. Therefore, the teachers need to be trained or they should be provided IT support for troubleshooting the technical problems faced by the teachers while delivering online instruction in the blended learning environment. (Okaz, 2015).

The inability to access online resource material associated with the teacher interaction can cause frustration, anger and anxiety among the students which can adversely affect productivity, learning, social relationships and overall well-being of the students. (Saade & Kira, 2009, pg. 179).

A technological support and server is required for many different tasks in blended learning such as uploading of the course materials, taking quizzes, posting links of e-resources, accessing of wikis, and working together in collaborative settings. Blended programmes allow both the students and faculty to take advantage of the flexibility and convenience of an online course and at the same time retaining the benefits of the face-to face interaction. However, many institutions appear to be struggling without proper implementation of the blended learning but blended courses are bound to be successful when strategically aligned with an institution's mission and goals.

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For designing an effective blended learning programme it is essential to maintain crucial balance between face-to- face interaction and online access (Osguthorpe & Graham, 2003, as cited in Badawi, 2009). Therefore, the teacher should try to achieve right balance between both the methods of instruction i.e. traditional classrooms and the online settings. Graham & Kaleta (2002) stated for successful integration of BL the teacher must spend a significant amount of time and his efforts into redesigning the curriculum of the class.

CONCLUSION

Blended learning method provides the students a variety of ways to approach the problem, issue or question that tries to satisfy the queries that arise in the mind of youngsters. The inquiry provides the platform that helps the students in building knowledge which develops thorough understanding of the subject matter among the students. The need for students to work together in collaborative settings refers not only to new ways of learning and doing but also to the development of skills required for the young generation who live and work in an extremely competitive world. Sustained collaboration in the development of new knowledge for learners is a growing trend. This can be difficult to accomplish in the present fast paced society but blended learning provides new opportunities for project-based group work in collaborative settings therefore it can be concluded that Blended learning can act as excellent medium and platform of communication for the students to sustain collaboration both in person and online. Moreover in the present conditions of lock down in our country due to global pandemic related to COVID-19, blended learning is the most suitable method for teaching the students through online mode using Google Meet and Zoom apps as well as for the professional growth of faculty members of various universities and college by attending online webinars and e- symposiums especially under these lock down conditions.

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