Research Article

Blended Learning Strategies: Possibilities and Challenges for Future

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Abstract

The world today is witnessing a shift towards the blended approach to teaching learning. This shift has been mainly driven by globalization of information and human capital; and newer fields of knowledge, fuelled by advancements in technology. The technological advancements have brought these changes across the spectrum of industries and activities including agriculture, manufacturing, banking, and medicine. In this age of digitalization, the use of technology in education is no longer a choice but a reality.

Use of technology in education offers unique advantages like easy access and flexibility, access to and sharing of global resources, infrastructure and human capital; inclusive pedagogy; cost effectiveness; continuity of learning and personalized learning and assessment. On the other hand, one cannot undermine the importance of face-to-face learning environments for various reasons. In addition, one needs to take into cognizance potential challenges that need to be addressed such as increasing digital divide; impact on social and emotional health; generational gaps in technology adoption; and using appropriate pedagogy.

Hence blended learning approaches are important and hold a lot of promise for future.The policy makers, academicians, students, researchers and other stakeholders including digital companies providing educational solutions should be geared to think of the possible ways in which blended learning could be adopted at the mass level. This paper provides an overview of various blended learning strategies, advantages and associated challenges.

Key words: Blended Learning: Definition, models, advantages and challenges

Introduction

Blended learning essentially means an integration of traditional physical classroom-based learning approaches with digital and online approaches where the online learning is not used merely as a supplement to physical classroom-basedlearning but rather replaces a significant part of it. The blended learning is also known by various terms such as mixed instruction, hybrid learning and technology enhanced learning. The earlier use of the concept of blended learning was in the form of distance education which involved a combination of sending teaching learning material to the students in the form of content modules along with occasional but planned face to face interactions. The advancements in technology brought modifications such as using audio and video lectures and emails but these were used in asynchronous mode. The asynchronous

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teaching learning means that the content may be delivered by teachers according to their schedule and the learners engage with that at their pace and time. The learners may ask questions, submit assignments and take tests through emails, text, voice messages and uploading on course websites. The most recent forms of blended learning, however, have presented and emphasized the synchronous mode of learning which allows students to interact with teachers and fellow students at scheduled times using technology.

Definitions of Blended learning

Blended learning is used as an umbrella term to encompass the mix of modes and approaches to teaching and learning with technology being one of the prime aspects of communication. There are several definitions of blended learning as indicated in literature survey.

Driscoll (2002) defines BL by categorizing the concept into four different groups:

"To combine or mix modes of web-based technology (e.g., live virtual classroom, self-paced instruction, collaborative learning, streaming video, audio, and text) to accomplish an educational goal;

"To combine various pedagogical approaches (e.g., constructivism, behaviourism, cognitivism) to produce an optimal learning outcome with or without instructional technology"

"To combine any form of instructional technology (e.g., videotape, CD-ROM, web-based training, film) with face-to-face instructor-led training"

"To create mixing or actual training or mixing of technology to create harmful tasks and work tasks"

Dziuban, Hartman and Moskal (2004)viewed blended learning as "A pedagogical approach that combines the effectiveness and socialisation opportunities of the classroom with the technologicallyenhanced activelearning possibilities of the online environment, rather than a ratioof delivery modalities".

For Staker and Horn (2012), "Blended learning is a formal education program in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path, and/or pace and at least in part at a supervised brick-and-mortar location away from home"

According to Friesen (2012),"Blended learning" designates the range of possibilities presented by combining Internet and digital media with established classroom forms that require the physical co-presence of teacher and students.

All the above definitions emphasize the integration of education with technology in the most effective manner so that the possibilities of face-to-face teaching in physical mode can be combined with technology assisted teaching through virtual classrooms. These virtual classrooms offer possibilities of live face to face interactions as well but all the participants need not be present in the same physical space.

Graham(2009) categorized blended learning into different levels such as Institutional level, Program level, Course level and Activity level. Blended learning at the institution and program

level is more to do with administrative stakeholders who would like to address issues such as cost effectiveness and expansion to larger audience. At the course and activity level blended learning is directly related students and teachers who are interested in modes of delivery, time management and effectiveness of teaching for their courses. This paper would mostly focus on the blended learning at the course and activity level which is directly related to the classroom practices rather than the administrative considerations. The paper also highlights that while blended learning promises certain untapped benefits to the students as well as teachers, it also has invited criticism from stakeholders for various reasons.

Forms/ Models of Blended Learning

Blended learning can be adopted by teachers and institutions in various forms depending upon their need and constraints. There may be a range of possibilities of blended learning with limited use of online resources to fully online curriculum and teaching with options of face-to-face interaction. Some of the most popular models of blended learning are discussed below:

1. **Face to face Driver**: Face to face driver model is very close to traditional physical contact model of teaching learning where the teacher has the most control and most of the content is delivered in physical classrooms. The use of online resources is limited for course revision, do at home exercises or for supplementary material in the form of videos, PowerPoints or e-books.
2. **Rotation**: The rotational model allows students to rotate between online classes and face to face classes in a fixed schedule.Staker and Horn (2012) has proposed some variations of rotation model that can be chosen by the teacher.

(i) *Station Rotation*: In the station rotation model, the teacher creates different task or stations and students rotate between these tasks or stations at some pre-decided intervals. The tasks or stations involve at least one online or technology driven stationwhile other stations could be offline group discussion, projects and paper pencil assignment. The station model is very beneficial in situation where there is limitation of technology such as availability of computers of gadgets and internet. The station rotation model alsohelp the students to experience a variety of tasks on a given topic and the teacher has the flexibility of providing different level of support at each station. Some of the stations could be completely learner driven. For effective use of station rotation model, the tasks should not be sequential so that students have the flexibility of choosing their station even in the beginning.A simple station model can have an independent work station, online station, group work station and teacher led station.

(ii) *Lab rotation*: In the lab rotation model, the student moves between online and offline classes by physically changing their space within the same campus with a fixed schedule. The students may interact with teachers in offline mode for certain task and then move to computer lab for online learning. This can be done in rotation in small groups. For its successful implementation computer lab should be equipped with enough computers, necessary software, printer and hand-held devices to allow learners learn at their own pace and enrich their classroom knowledge. The lab should also have a teaching assistant who can generate reports of student's progress and share it with them.

(iii) *Individual Rotation*: The individual rotation model is the most personalized way of teaching where an individual student rotates through a set of activities or tasks at

regular intervals which are set by the teacher or an algorithm. Each student gets a chance to experience personalized tasks depending on his need, interest and progress. One of these tasks has to an online task. Unlike the station rotation model, the students do not rotate through each station but only to the tasks defined for him.

(iv) *Flipped classroom*: The flipped classroom also known as the inverted classroom basically reverses the time allotment and teaching approach used in a traditional classroom. In this model students are provided with video lectures, podcast and e-books on the selected topic. The learners complete them at home and comes to the class for face-to-face interaction with teachers for doing enrichment activities, creating new ideas, application of concepts and home assignments. The model allows students to go through the course content at their own pace and use the classroom for applying what they have learnt at home. So, unlike the conventional approach where project work in science is given for homework, the flipped model allows the project work to be brough to the class. The flipped classrooms are proven to be more efficient and student centred but at the same time they have the potential of creating and enhancing the digital divide.

3. **Flex Model**: In this model the primary focus is on individually paced online learning. The students learn virtually from their homes or any other location while the teacher is stationed at campus. The primary learning environment of the students is digital but they have the flexibility of having face to face individual or small group interactions with the teacher by scheduling their visits to the campus. The flex model is very helpful for the learners for whom schools and educational institutions are located faraway or are unable to adhere to a fixed schedule due to their socio-economic constraints. The spread of technology even in the remote locations has made education accessible for everyone. However, the financial resources involved in creating a digital environment at home could be a challenge for many.

4. **Self-Blend**: Self blend model allows students to choose a mix bag for themselves. They may choose some courses of the entire program in online mode and others can be done in physical mode at the campus. The self-blend model allows students to take additional courses for their own growth in online mode as it may not be possible for them to attend to all the courses in face-to-face mode. The additional courses could also be chosen from the common and shared resources of various collaborating institutes. It adds flexibility of choosing a course of their choice even if that course is not being offered by their own institute.

5. **Online driver model**: The online driver model of learning has been mostly used for adult education or in situations where learners are remotely located and face to face interactions are not possible. The learners and teachers interact with other through online platforms in synchronous and asynchronous ways. The live classrooms are set through online platforms such as google meet, Microsoft teams and zoom where students and teachers interact with other in real time at a fixed schedule. The reading material, resource books, activity instructions, notes, ppts and assignmentare provided through uploading content of LMS(learning management system) or websites.

Requirements for Implementing Blending Learning

As the educational institutes worldwide are witnessing the shift towards blended mode of learning, it is important to understand that successful and large-scale implementation of blended learning would pose certain requirements in terms of infrastructure, administrativesupport and professional training. Some of the basic requirements of blended learning are as follows:

1. *Infrastructure*: The infrastructure required for effective use of blended learning is a broad term and includes a variety of things as discussed below. The institutions aspiring to adopt blended learning would need to make investment in the infrastructure. The financial support from the government has to be ensured in government funded institutions.

- *Learningmanagement system (LMS)and Enterprise Resource Planning (ERP)*: LMS is a software platform to create, manage and deliver educational content. LMS works through a secured user id and login allows students to get enrolled in a course. The teacher and students have the flexibility of using all forms of content including video, courses and documents. It facilitates e learning by providing remote access of all kinds of content to students, scheduling interactive sessions, tracking students' progress and providing feedback to students and parents. Educational institutes can buy stand alone server based LMS or cloud based LMS. LMS could also be integrated with ERPs to manage the life cycle of students in a course from admission to course completion.

- *Wi-fi and Intranet*: The campus should be wi-fi enabled with all classroom of blended learning connected with each other. Necessary firewall should be in place.

- *Computers/ laptops/tablets*: The students and teachers need to be provided with low-cost devices so that technology do not become a barrier for those who cannot afford it.

- *Smart Classroom*: The campuses need to have some smart classrooms with facilities like projection, audio and video recording, content production etc.

- *Domain specific software*: The institutes need to invest in domain specific software for students and teachers.

2. *Power*: The undisturbed power supply for sufficient number of hours in the day is a must for students and teachers to benefit from blended learning. It is still a distant dream in many remote geographical locations.

3. *Training for staff and students*: To begin with, teachers and students need to be provided with general training about the use of various technological features for their classes so that they become comfortable with teaching and learning in the digital environment. More advanced and subject specific training should be arranged subsequentially to make it a more engaging and immersive experience. Theyshould also be made aware about the responsible use of technology. Ethics associated with using e-content and technological platforms should be strictly adhered. In addition, the students as well as teachers might experiences social and emotional disturbance if the use of digital learning environment becomes the pre-dominant aspect of blended learning. It is best to keep a good mix of online and offline interactions in blended mode but it may not always be possible. In such scenarios, mental health and counselling sessions should be arranged by the institutes to make blended learning a sustainable and pleasurable experience.

Advantages or Potentials of Blended learning for future

Blended learning approaches combine the best of face to face and digital learning environments and hence seems to hold promise for future educational endeavours for various reasons.

1. *Easy Access and Flexibility*: Blended learning approaches makes education more accessible to the learners in remote locations where the facilities of on campus education are not there or are very limited. It also provides flexible learning hours, course content and the opportunities to learn at individual pace.

2. *Access to and sharing of Global resources, infrastructure and human capital*:One of the biggest advantages of blended learning is to allow students access to global resources in terms of infrastructure and experts in different fields using online instructions. This would enhance the quality and equality in education. The sharing of resources at global level also helps in building a culture of openness and collaboration.

3. *Better Understanding of Concepts*: The blended learning approaches use a variety of instructional material. It also allows students to engage more deeply with concepts. For example, in the flip model of blended learning, the students learn the basic concepts at home using online instruction and get the opportunity to have more meaningful and advanced discussion with peers and teachers in the classrooms.

4. *Enhanced Communication*: The blended learning allows enhanced communication with the peers and teachers as students and teachers do not meet for fixed hours unlike the face-to-face mode. They can interact through live chats, personal and group video call, emails and social media. The communication and collaborationsare possible at a global scale rather than being localised. The students feel more confident and less inhibited in blended learning environments.

5. *Inclusive Pedagogy*: The use of technology in blended mode helps to create more inclusive environments for students with physical and learning disabilities. There are many assistive tools and software available to help children according to their need. The text to speech software is very helpful for students who have difficulty in reading standard prints due to various conditions such as visual impairment, dyslexia or any other learning disability that hampers their ability to read. Similarly, there are assistive listening systems for children with hearing problems. These tools enhance the reach and effectiveness of hearing aids or cochlear implants and are also helpful for who those do not use these aids but still need help in hearing. The tools such as screen reader act like braille for visually impaired children and allows them to use computers effectively.

6. *Cost Effectiveness*: The blended learning requires institutes to set up basic infrastructural facilities in the beginning but overall a single institute can cater to much bigger audience reducing the overall cost. The content and resources and be reused and replicated in multiple settings. The e- content and virtual schools are supposedly more cost friendly and environment friendly as they reduce dependency of paper.

7. *Continuity of learning*: Blended learning helps in maintaining continuity of learning in unexpected situations such as natural disasters, pandemic and migration to a different geographical location.

8. *Personalized learning and assessment*: The various models of blended learning discussed above offers possibilities of more personalized learning and assessment for students. For instance,the individual rotation model allows students to follow their own schedule and activities. These activities are like their personal playlists. The blended learning approaches advocates on demand examinations as the students can complete the course at their own pace. The online quizzes, games and puzzles are means of providing flexibility

and immediate feedback to the students. The students get their scores in private and may choose not to share it with their peers.

Challenges associated with Blended Learning

While the future schools need to be prepared to embrace blended learning, it is also important to look at the criticism and challenges associated with blended learning.

1. *Create and increase digital divide*: The success of blended learning depends upon a robust technological infrastructure both at the institution level and at the learner's level. The unequal access to internet, power and technological gadgets for teachers and learners belonging to socially and economically disadvantaged sections would further accentuate the already existing social barriers. The stakeholders including teachers, administrators, students and parents need to be provided training for the effective use of various technological platforms so that they can work in collaboration with each other.

2. *Impact on social and emotional health*: The face-to-face interaction at institutions help the students and teachers to establish rapport with each other, learn from the diversity of experiences, agreements and disagreements which often go beyond the classroom. The online classrooms curtail these spaces to a large extent. This impacts their social and emotional health adversely. The huge amount of time spent with technological gadgets increase the learners screen time and promote sedentary life style. Such lifestyle is detrimental to good physical and mental health.

3. *Increased workload*: The blended mode of learning often increases the students' and teachers' work load as they end up taking extra courses and keep working beyond scheduled timings in the name of flexibility. In addition, teacher and students find it difficult to switch between dual modes of learning.

4. *Technological challenges*: The technology literacy is another challenge in the success of blended learning. The teachers and students need training and continued support to get used to technology. Simply understanding the basic use of technology would affect the quality of teaching learning. It is argued that students find the recorded video lectures very monotonous and often loose interest even if they are delivered by experts.

5. *Generational gaps in technology adoption*:While the people born between early 1980s to mid-1990s, typically known as millennials have grown into seeing the progress of technology from desktops to laptops and smart devices and have high degree of comfort with the progress of technology; the Z generation (mid 1990s to ongoing) seems to be naturally drawn and equipped to use technology and prefer to use it in all possible ways. The earlier generations before 1980s may have some inhibitions but have gradually embraced the change in varying degrees as per their needs. In a usual classroom scenario, the teachers and learners would belong to different generations and hence may have different expectations from a learning environment. This may result into communication gap and demotivation among both learners and teachers.

6. *Using appropriate pedagogy*: Technology is means to communicate with the learners but it should be integrated with effective pedagogy for effective learning. The pedagogy takes care of the nature of discipline, context of learners, their age and interest etc. often these aspects are ignored in online mode. For instance, the students' prior ideas have a significant impact on their learning. The learners construct their own knowledge based on their personal and social experiences. It is important that teachers do not ignore the basic principles of learning and use appropriate pedagogy even in online mode. Blended

learning approaches are not merely about acquiring the various skill sets to use technology for instruction, rather is about developing the right attitude and engagement of the learners in the course.

Summary

Blended learning has become the reality for future educationsystem. The technological advancements have impacted almost all fields such as agriculture, manufacturing, banking and medicine and it would be inappropriate to ignore their impact on education system. Any education system in the world has to be progressive in its outlook and be open towards the change. The blended learning indicates a shift from the conventional face to face teaching learning model to a hybrid or blended model that use both physical and online modes of communication. The paper has discussed various blended learning models and the advantages of using them. It also cautions us to be cognizant of the challenges associated with it so that use of technology in blended mode does not overlook the core objectives of any program. The blended classrooms for future should be informed by researches done in this field and the practitioners should carefully use the best practices from face to face and online modes of teaching. The success of adopting blended learning depends upon designing effective course curriculum, building robust technological infrastructure, widening the access of resources to bridge the digital divide and use appropriate pedagogy along with technology.

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