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BLENDED LEARNING - UNDERSTANDING ITS FRAMEWORKS AND MODELS

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Abstract

Blended learning is a pioneering idea that has the potential to provide quality education in our Indian society. Our Indian education system cannot completely depend on the face-to-face mode and needs to restructure itself according to the needs and demands of the current situation. In our education system, Blended learning is in the evolving stage; therefore, this paper will help us to understand the different frameworks of blended learning and teaching along with various models or approaches through which the teaching and learning process can be done in the blended classrooms. This will enable practitioners to think and rethink which model or the combinations of models will be effective in the classrooms. Complex Adaptive Blended Learning System (CABLS) and Community of Inquiry (COI) framework will guide us to introspect different aspects and elements of blended learning. These frameworks will provide a complete view of what constitutes blended learning and how different components of blended learning work together over time to achieve an integrated whole.

Keywords: Blended Learning, Teaching-learning Process, CABL (Complex Adaptive Blended Learning System), COI (Community of Inquiry).

Introduction

In today's scenario for imparting education, computers, tablets, and smartphones have become tools or mediums to reach our students. Schools and Colleges are augmenting web-based learning to their delivery methods and learners have access to many applications to support their learning. "Blended learning is an educational program where more than one delivery mode is being used to optimize the learning outcome and/or cost of the program delivery" (Singh & Reed 2001 [25]). Teachers are a key part of blended learning; they have subject-matter expertise and basic technology skills, along with the new pedagogies that go with technology, such as constructivism and collaboration. Blended learning expertise provides both traditional teaching in the classroom and ICT supported learning including both offline learning and online learning. As there is a sudden shift in the education system due to pandemic, blended learning provides the solution for the education of our students. The demand of today is an approach that blends the advantages of both the modes for the student's learning i.e., blended learning. Blended learning has influenced the overall teaching and learning process whether it is pedagogical strategies, instructional methods used by the teachers or the academic achievement of the students. The vast majority of blended learning research has focused on educational settings in the western countries and thus attention is needed for its successful implementation in developing countries like India where education is suffering from so many problems in spite of the best efforts taken at various levels by the government.

Blended Learning

Blended learning is not merely the addition of some technological element to an existing course but rather is an integrated plan utilizing the best of what both face-to-face and online learning have to offer. The most widely held understanding of blended learning is that it is a combination of "face-to-face instruction and computer-mediated instruction" (Graham, 2004) [11]. It has been defined and redefined by various studies, but none has provided us with a complete view of what constitutes blended learning and how different components of blended learning work together over time to achieve an integrated whole. Garrison & Vaughan, 2008 described it as a "thoughtful fusion of face-to-face and online learning experiences".

In other words, blended learning is a teaching and learning process where more than one delivery mode is being used to optimize the learning outcome. It can be applied to the practice of providing instruction and learning experiences through some combination of both face-to-face and technology-mediated learning. With the technology-mediated components available in this learning environment, students are not required to be physically together in one place but may be connected digitally through online communities. For example, in one blended classroom, students are attending a class taught by the teacher in a

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traditional classroom setting while also completing online components of the course independently, outside of the classroom, on an online learning platform. In a quality blended classroom, the content and activities of both in-person and online learning are integrated and work toward the same learning outcomes with the same content. The various learning experiences are synthesized, complement each other, and are planned to run in parallel.

Frameworks of Blended Learning

Bonk & Graham, 2006 described blended learning as a part of the ongoing convergence of two archetypal learning environments. However, the influences of the two types of delivery are not equal, and how to blend looks different. Wang, Yang & Han (2015) [30] in the article revisiting the Blended Learning Literature: Using a Complex Adaptive Systems Framework a six-dimensional framework named the Complex Adaptive Blended Learning System (CABLS). It comprises the six subsystems and their relationships: the learner, the teacher, the technology, the content, the learning support, and the institution. Similarly, to any complex system, the six subsystems act within themselves in a dynamic and non-linear fashion. Each of these subsystems has its elements and factors, depending on surrounding subsystems, to uphold its potentiality. This framework will help in understanding blended learning and various interacting components. Teachers will be most interested in the relationship between content, learners and technology.

Complex Adaptive Blended Learning System Framework

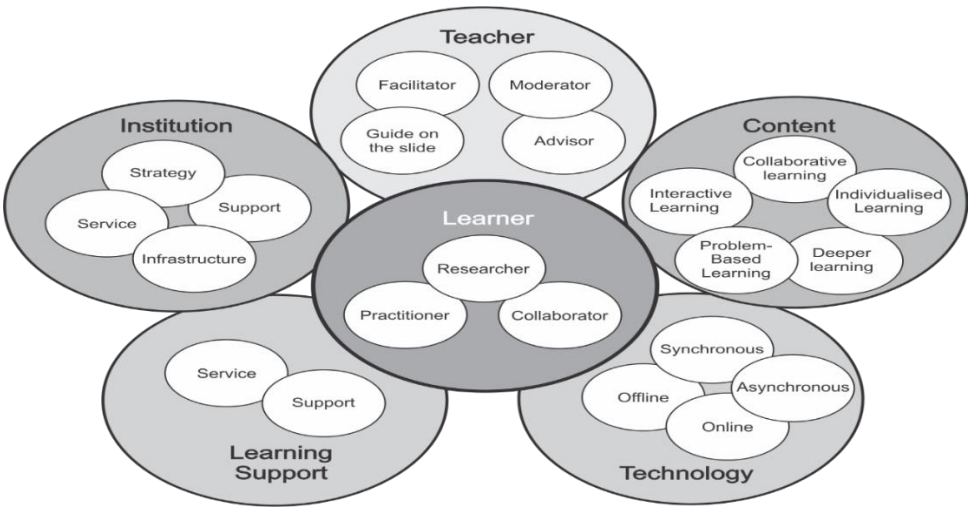

Figure 1: The Framework of Complex Adaptive Blended Learning Systems (CABLS)

As discussed by Cleveland-Innes. M, and Wilton. D, (2018) [6] the six elements of the CABLS framework are -

Learners:- In blended learning, studies have confirmed the transformation of learners from being passive to becoming active participants in learning. As a complex subsystem, the learner co-evolves with other subsystems, constantly acquiring new identities in the multimodal learning environment.

Teachers:- In this, the role of teachers will co-evolve with students as both engage with and adapt to each other and the other four elements in the system. The teachers engaged in the blended learning environment will adapt to pedagogies appropriate not only for blended learning but for learners preparing to engage. There are many new labels given to the teachers, for example, e-moderators, facilitators, guides on the side, and advisors, among others.

Content:- It refers to the subject matter and the material elements used to engage learners in the process of mastering that subject. The interactive, dynamic, media-rich materials available online create opportunities for teachers and learners to add content before, during and even after the course experience.

Learner Support:- Learner support is included in this framework is to emphasize the development required to be a competent blended learner and the ongoing support needed when the system includes complexity. Wang et al. (2015) [30] described learner support as the academic support focusing on helping learners to develop effective learning

strategies, such as time management and collaborative skills, and technical support aiming to help students improve their knowledge of the technological tools and the fluency with which they use the tools to complete specific learning tasks.

Technology in CABLS:- Technology in general terms refers to any equipment or mechanism that extends the human capacity to get things done, the creation and use of technical means, and their interrelation with life. Empirical studies have shown that new technologies usually undergo a dynamic, adaptive process of emergence, adoption, and establishment or obsolescence. The self-organizing process of the systems eventually retains those technologies that best facilitate blended learning.

Institution in CABLS:- Just as classroom-based learning requires buildings, desks, lighting and other accessories of brick-and-mortar institutions, blended learning requires technological infrastructure and digital equipment. In order to sustain blended learning, support mechanisms should be provided at an institutional level and can include strategies, policies, support and various services.

This framework "facilitate a deeper, more accurate understanding of the dynamic and adaptive nature of blended learning" (Wang et al., 2015, p. 390) [30]. This CABLS design of blended learning allows novices to consider key interacting components at work as they create and offer a blended learning course or programme. Teachers will be aware and interested in the relationship between content, learners and technology, thus can consider it while designing the blended classroom. Another framework was developed in 2000 by Garrison, Anderson, and Archer to structure the process of learning in an online or blended environment. The Community of Inquiry (CoI), a model of inquiry-based teaching and learning, is based on the work of John Dewey and constructivist views of experiential learning. The CoI framework describes the necessary elements to create deep and meaningful learning. The original framework identifies the education experience as occurring at the convergence of three presences: cognitive, teaching and social. In this model, presence is defined as a state of alert awareness, receptivity and connectedness to the social, cognitive, emotional and physical workings of both the individual and the group in the context of their learning environments. In keeping with the original three presences of the CoI framework (social presence, cognitive presence and teaching presence), blended learning using the CoI framework creates opportunities for self-reflection, active cognitive processing, interaction and peer-teaching. In addition, expert guidance from teachers at the right time encourages engagement and shared application activities, highlighting the importance of creating communities of inquiry in the classroom - whether face-to-face, online or blended.

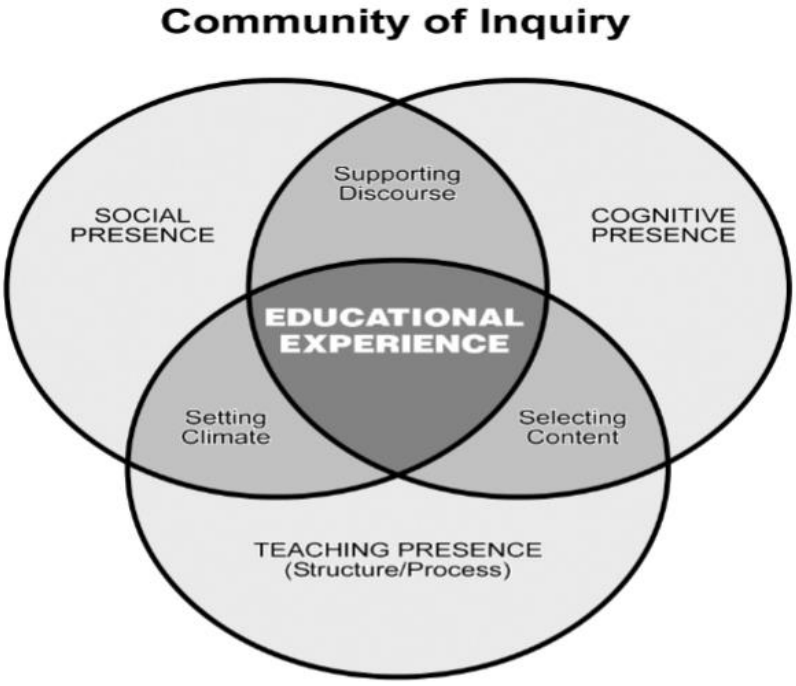

Figure 2: Community of Inquiry (CoI) framework developed by Garrison, Anderson and Archer (2000) [9]

Each of the three elements of the Community of Inquiry framework is from Garrison and Arbaugh (2007) [8].

- Social presence means is related to the ability of learners to project them socially and emotionally, thereby being perceived as 'real people' in mediated communication.
- Teaching presence is related to the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes. Teaching presence, rather than "teacher presence," is so named to allow for a teaching function for both teachers and students in a CoI. While the teacher, or instructor plays a leadership role and fosters peer-teaching among students
- Cognitive presence is related to the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse. Cognitive presence has the elements of practical inquiry: triggering events, exploration, integration and resolution. Direct instruction and facilitation of cognitive activity, beyond just explaining content, is a key role for teachers using this framework.

The CoI framework involves guided inquiry as it includes teaching activity and provides guidance, based on theory and practice, on content and processes for blended learning. The three presences of the CoI framework (social presence, cognitive presence and teaching presence), gives the scope of self-reflection, active cognitive processing, interaction and peer-teaching. The guidance from teachers also encourages student's engagement and it highlights the importance of creating communities of inquiry in the blended classroom. Both frameworks provide or facilitate to have a deeper understanding of the various elements working in the blended learning environment. The elements and their relationship among each other can be used as tools both for designing and for evaluating the contents, structure, and activities of the classroom.

Models of Blended Learning

Many factors must be considered when choosing how to blend in-person and online teaching and learning activities. In some cases, most interactions between students and the teacher, as well as the direct delivery of instruction, take place in person in the classroom, while content, materials, or some additional activities can be delivered online. In other cases, most of the class activities occur online, with meetings in person to solve problems. In some blended arrangements, students may choose which activities to complete online and which to complete in a classroom.

Blends can be modified as per the needs of the students that best fit their age, life circumstances, and learning needs. One such type is à la carte models. Students choose themselves what to take fully online and what to take fully in person. Blended courses are designed in such a manner, where the learner chooses when to go to in-person classes and when to watch videos, download readings and complete assignments online. Graham, 2006 described that blended learning covers one or more of the following three situations:

- Combining instructional modalities (or delivery media)
- Combining instructional methods.
- Combining online and face-to-face instruction

O'Connell (as cited in Cleveland-Innes. M, and Wilton. D, 2018 [6]), gave seven structures or models of blended learning which were as follows-

• Blended face-to-face class:- In this, a significant amount of classroom time has been replaced by online activities. Online activities are used to supplement the face-to-face classes whereas readings, quizzes, or other assessments are done online at home. This model allows students and faculty to share more high-value instructional time because class time is used for higher-order learning activities such as discussions and group projects.

• Blended online class:- In this, the class is mostly conducted online, but there are some required face-to-face activities such as lectures or labs which need to be done. This class is the inverse of the blended face-to-face class.

• The flipped classroom:- The flipped classroom reverses the traditional class structure of listening to a lecture in class and completing homework activities at home. Students in flipped classes watch a short lecture video online and come into the classroom to complete activities such as group work, projects, or other exercises. The flipped classroom model can be seen as a sub-model of the blended face-to-face or blended online class.

• The rotation model:- In this model, students in a course/class have to rotate between various modalities, one of which is online learning. There are various sub-models: station rotation, lab rotation, and individual rotation. For example- In the station rotation model, students are required to rotate between stations in the classroom at an instructor's discretion. While the lab rotation model works well on a college campus, students are required in a course to rotate among locations on

campus (at least one of which is an online learning lab). In the individual rotation model, a student rotates through learning modalities on a customized schedule.

• The self-blend model:- Some of the blended learning models on this list are at the course level whereas this self-blend model works at a programme level and is familiar to many college students.

Learners using this model are enrolled in a school but they take online courses in addition to their traditional face-to-face courses. The learners are not directed by a faculty member and they choose which courses they will take online and which they will take in person.

• The blended MOOC:- The blended MOOC is another form of the flipped classroom using in-person class meetings to supplement a massive open online course. Students have access to MOOC materials from another institution or instructor outside of the class and then come to a class meeting for discussions or in-class activities. For example - LaMartina, 2012 [16] mentioned that San Jose State University piloted a blended MOOC using MIT's Circuits and Electronics course, with students taking the MOOC out of class while face-to-face time was used for additional problem-solving.

• Flexible-mode courses:- In this model, all instructions are given in multiple modes like- face to face person and online, or the students can choose how to take their course. Beatly, 2016 mentioned an example of the Hybrid flexible (HyFlex) model from San Francisco State University, which offers classroom-based and online options for all or most learning activities which allow students to choose how they will attend classes- online or face to face.

Horn and Staker (as cited in Ayob, N. F. S., Halim, N. D. A., Zulkifli, N. N., Zaid, N. M., & Mokhtar, M. 2020 [2]) proposed six models of blended learning which are face-to-face driver, online lab, flex, self-blend, rotation, and enriched virtual model. Later, Face-to-Face and online lab was removed from the six blended learning models as they resembled traits or characteristics of the other model.

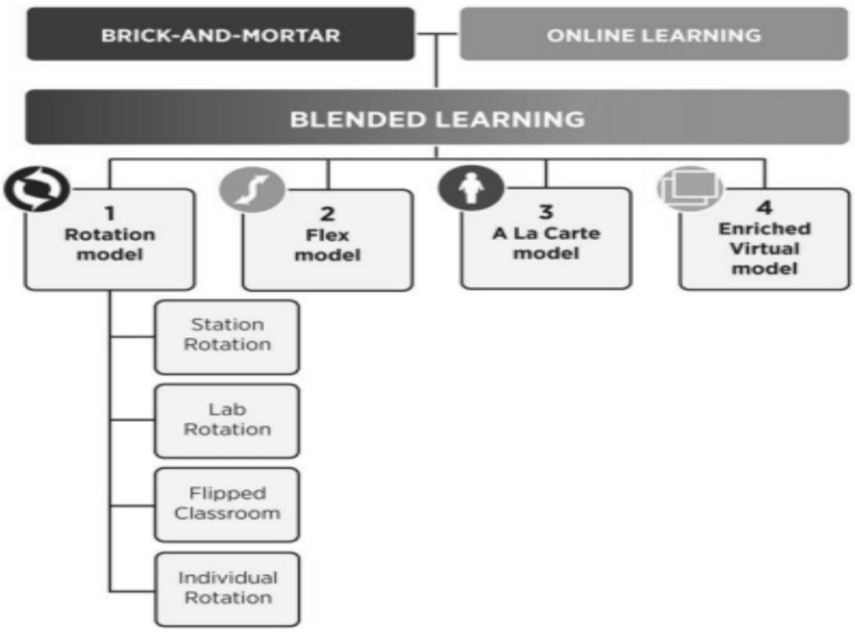

Figure 3: Categories of Blended Learning Models cited in E. Mohamed Amin, M.N. Norazah, and P. Ebrahim, 2014

1. Flex model:- Contents delivered mostly via an online platform. Students are flexible to move on their own among the delivery modalities. The teacher will be on the side of the students. Individual tutoring and small group sessions will be carried out if needed.
2. Self-blend model:- The students learn one or more topics using the online platform with an online teacher. It will assist offline traditional face-to-face learning. Students blend themselves by learning online individually and learning at schools with face-to-face teachers.

3. Enriched-virtual model:- Students takes offline traditional face-to-face learning and learns the content and instructions alone using online learning. They divide the time on their own. In general, it is a normal school experience.
4. Rotation:- Students rotate between different learning methods. They rotate between online learning in offline traditional face-to-face classrooms and online environments. Then, they also have to learn in a face-to-face learning classroom. The rotation model is divided into four small groups.
    - Station rotation- Students rotate between different learning modalities which include one station of online learning. Other stations will include a few small groups or the whole class. The content includes tasks by groups, individual tutoring, and assignments.
    - Lab rotation- Students rotate from their classroom to the learning lab to join the lessons.
    - Flipped classroom- Students rotate between offline traditional F2F learning at school and the delivery of content via online sources at their home after the school session.
    - Individual Rotation- Students will rotate based on a fixed individual schedule. The teacher will set their student schedules. The students do not need to rotate for every station or method.

Conclusion

Teachers always have the challenge to meet the diverse needs of individual's students. They might have to struggle to provide content or activities for the different kinds of the learner. Blended learning and its various models are important because it breaks down the traditional walls of teaching that might not work for all students in the same manner. But, now with access to present-day technologies and resources teachers can tailor the learning experience for each student. These blended learning models have their context and strength which offers a different pattern of flexible time frames that can be adapted in the classrooms enabling the learners to learn at their own pace. These models of blended learning allow students to take classes beyond what is already offered at their school.

Conflict of Interest

There is no conflict of interest between the authors in this manuscript.

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