

## **Empowering Digital Age Prospective Teachers and Teacher Educators in Creating Innovative Future Through Incorporating Blended Learning in Higher Educational Institutions of India**

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**ABSTRACT:** *Today's digital age learners are tomorrow's Nation builders as well as policy makers. Therefore, the education imparted to them must be innovative and updated in the background of the present digital era. Educational and related higher educational institutions are becomingly increasingly aware that today's generation learners are different with the widening of access to education and greater exposure to technology, today's learners are not only much more diverse but more varied as well. Higher education learners have the challenge to position their institutions for the twenty first century. Added to this, the 21<sup>st</sup> century workplace also poses knowledge and skill demands that are different from the previous century knowledge and skill demands. Educators have been cautioning that unless the challenges posed by this new education landscape, are addressed, they can result in dire consequences. Bored with traditional methods, this new generation learners may withdraw from studies and go in search of activities that are, more engaging and interactive. The need to revolutionize approaches to learning and teaching is therefore now more urgent than ever. The present paper tries to highlight and elaborates the importance, benefits, models, new approaches and techniques of blended learning and how it is suitable for the digital age learners to empower them with advanced and modern learning skills. The term blended learning has now become a corporate buzzword. Blended learning provides a 'good' mix of technologies and interaction, resulting in a socially supported, constructive, learning experience. The purpose of this paper is to explore and focus upon the concept of blended learning in a comprehensive yet coherent manner.*

**Keywords:** *Blended learning, Digital age learners, Higher Education, Professional Development, Models of teaching, ICT*

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### **I. INTRODUCTION**

Today higher education institutions must address changing expectations associated with the quality of the learning experience and the wave of technological innovations. It is beyond time that higher education institutions recognize the untenable position of holding onto past practices that are incongruent with the needs and demands of a knowledge society. The greatest possibility of recapturing the ideals of higher education is through redesigning blended learning. Blended learning is more than enhancing lectures. It represents that transformation of how we approach teaching and learning. It is a complete rethinking and redesign of the educational environment and learning environment and learning experience. Blended learning is a coherent design approach that openly assess and integrates the strengths of face-to-face online learning to address worthwhile educational goals. When blended learning is well understood and implemented, higher education will be transformed in a way not seen the expansion of higher education in the late 19<sup>th</sup> and 20<sup>th</sup> centuries. The challenge now is to gain a deep understanding of the need, potential and strategies of blended learning to approach the ideals of higher education.

Blended learning can be thought of as a pedagogical approach that combines the effectiveness and socialization opportunities of classroom with technologically advanced active learning possible of the online environment. Research has shown that high level of student and instructor satisfaction can be produced in the fully online environment. But both faculty and students lament the loss of face-to-face interaction.

Blended learning models comprise of the following elements like learning through information, learning through interaction, learning through collaboration and learning through classroom experiences mixed in varying proportion according to an organization's requirements. Dziuban, Hartman and Moskal (2004) in a research brief for "Educause" titled "Blended Learning" noted that, "Blended Learning should be viewed as a pedagogical approach that combined the effectiveness and socialization opportunities of the classroom with the technologically enhanced active learning possibilities of the online environment, rather than a ratio of delivery modalities".

In recent years, ICT has paved the way for accelerating the paradigm shift through providing more flexible ways of learning. The students can do self learning using enormous potential of internet and providing them with several on-line exercises. The main focus should be on learning types of non-classroom technology

mediated delivery has been practiced within the academy for more than four decades. A good blend would provide optimum role of live interaction. It is essential to provide a good support and training model and should keep the cultural components in mind. It is the responsibility of authorities to provide necessary learning support in providing access to on-line learning so that our students become blended learner' with self-regulatory authentic learning experience.

## **II. HISTORY OF BLENDED LEARNING**

### **Blended Learning----An Overview**

E-Learning has had an interesting impact on the learning environment. Although it represents tremendous potential in the way it could revolutionize learning and development, it has rapidly evolved into a concept of blended learning which, like its name suggests, blends online learning with more traditional methods of learning and development.

Blended learning is the most logical and natural evolution of our learning agenda. It suggests an elegant solution to the challenges of tailoring learning and development to the needs of individuals. It represents an opportunity to integrate the innovative and technological advances offered by on-line learning with the interaction and participation offered in the best of traditional learning. It can be supported and enhanced by using the wisdom and one-to-one contact of personal choices. One of the most important factors in creating blended learning, solutions is to recognize factors in creating blended learning, solutions is to recognize where it fits in the broader context of organizational learning and development. The potential of blended learning is almost limitless and represents a naturally evolving process from traditional forms of learning to a personalized and focused development path.

### **Meaning and Definition of Blended Learning**

Recognizing true blended learning is not obvious. Blended learning is the thoughtful fusion of face-to-face oral communication and on-line written communication that are optimally integrated such that the strengths of each are blended into a unique learning experience congruent with the context and mended educational purpose. Although the concept of blended learning may be intuitively apparent and simple, the practical application is more complex. Blended learning is not an addition that simply builds another expensive educational layer. It represents a restructuring of class contact hours with the goal to enhance engagement and to extend access to Internet-based learning opportunities. Most important, blended learning is a fundamental redesign that transforms the structure of, and approach to teaching and learning.

Blended learning emerges from an understanding of the relative strengths of face-to-face and online learning. This opens a wide range of possibilities for redesigning learning that goes beyond enhancing the traditional classroom lecture. Attaining the threshold of blended learning means replacing aspects of face-to-face learning with appropriate online learning experiences such as labs, simulations, tutorials and assessment. Blended learning represents a new approach and mix of classroom and online activities consistent with the goals of specific courses or programs. Blended learning brings into consideration a range of options that require revisiting how students learn in deep and meaningful ways.

Blended learning environment combines traditional face-to-face instruction with computer-mediated or online instruction. The term has become a corporate buzzword during the past few years (Lamb, 2001). Recently the American Society for Training and Development identified blended learning as one of the top ten trends to emerge in the knowledge delivery industry in 2003 (Rooney,2003). As noted by Barbian (2002), Marc Rosenberg, author of *E-Learning Strategies for Delivering Knowledge in the Digital Age* (2001), has argued that, "the question is not what we should blend.....rather the question is what are the ingredients that are to be Blended?'. The key assumptions of blended learning designs are:

1. Thoughtfully integrating face-to-face and online learning.
2. Fundamentally rethinking the course design to optimize student engagement.
3. Restructuring and replacing traditional class contact hours.

### **Blended Learning in Higher Education**

Blended learning in higher education provides a vision and a roadmap for higher education students to understand the possibilities or organically blending face-to-face and online learning for engaging, fruitful, beneficial and meaningful learning experiences. Blended learning provides an organizing framework to guide the exploration and understanding of the principles and practices needed to effect the much needed transformational changes in higher education. It also provides practical examples and organizational support structures required to fuse a range of face-to-face and online learning to meet the quality challenges and serve disciplinary goals effectively and efficiently.

The transformation of teaching and learning in higher education is inevitable with the use of Web-based communications technology (Newman, Couturier and Scurry, 2014). Fundamental redesign based on

blended approaches to teaching and learning represent the means to address the challenges associated with provided a quality of learning experience. Although the catalyst for change in teaching and learning has been technology, as it is the need of the hour so as to enhance quality standards that is drawing attention to the potential of blended approaches. Technology is an enabling tool. Because blended learning is an approach and design that merges the best of traditional and web-based learning experiences to create and sustain vital communities of inquiry, many higher educational institutions in India are quietly positioning themselves in order to harness its transformational potential.

Blended learning is at the heart of an evolutionary transformation of teaching and learning in higher education. However, transformational growth can only be sustained with a clear understanding of the nature of the educational process and intended learning outcomes. The higher education provides an expresses focus on opportunities for learners to construct meaning and confirm understanding through discourse. At the core of this process is a community of inquiry that supports connection and collaboration among learners and creates a learning environment that integrates social, cognitive and teaching elements in a way that will precipitate and sustain critical reflection and discourse. Blended learning opens the possibility of creating and sustaining a community of inquiry beyond the classroom.

**Blended Learning for Higher Education Learners will be:**

1. Highly interactive with practice exercises and activities.
2. Less expensive, more flexible and more effective.
3. Meeting the learners' expectations for utilizing technology in learning skills.
4. Developing independent learning skills.
5. Offering increased flexibility and convenience.
6. Providing better success to those with learning disability.
7. Enhancing technical savvy.

**Blended learning consists of two features**

1. It is a planned combination of online learning and face-to-face instruction using a variety of learning resources.
2. It is an educational format that integrates online learning techniques including online delivery of materials through web pages, discussion boards and e-mail with traditional teaching.

**III. BLENDED LEARNING: A CONTINUUM OF E-LEARNING**

The core issue and argument is such that, when we have solid understandings of the properties of the Internet, as well as knowledge of how to effectively integrate Internet technology with the most desirable and valued characteristics of face-to-face learning experiences, a quantum shift occurs in terms of the nature and quality of the educational experience. At the heart of this argument is the quality and quantity of the interaction and the sense of engagement in an community of inquiry and learning, achieved through the effective integration of Internet communication technology. Focusing for a moment on the proportion of the Internet, we know that much of the satisfaction and success of blended learning experiences can be attributed to the interactive capabilities of Internet communication technology. Garrison and Cleveland-Innes, 2013 and Swan, 2014). A closer examination reveals the ability of asynchronous Internet communication technology to facilitate a simultaneous independent and collaborative learning experience. That is, learners can be independent of space and time-yet together. A concomitant property of learning with Internet communication technology is that it has a significant educational implication resulting from the emphasis on written communication. Under certain circumstances, writing can be highly effective from of communication that encourages reflection and precision of expression. When thoughtfully integrated with the rich dynamics of fast-paced, spontaneous verbal communication in a face-to-face learning environment, the educational possibilities are multiplied.

What makes blended learning particularly effective is its ability to facilitate a community of inquiry. Community provides the stabilizing, cohesive influence that balances the open communication and limitless access to information on the Internet. Communities also provide the condition for free and open dialogue, critical debate, negotiation and agreement---the hallmark of higher education. Blended learning has the capability to facilitate these conditions and adds an important reflective element with multiple forms of communication to meet specific learning requirements. For example, at the beginning of a course, it may be advantageous to have face-to-face class so as to meet and build community. In contrast, discussing a complex issue that requires reflection may be better accomplished through an asynchronous Internet discussion forum.

Whether face-to-face or online, communities of inquiry consist of three elements: cognitive, social and teaching presence. The sense of community and belonging must be on a cognitive and social level if the goal of achieving higher levels of learning is to be sustained. This requires the consideration of the different cognitive and social characteristics of each medium of communication. In this regard, blended learning presents a special

challenge and, thus, highlights the importance of the third key element---teaching presence. Teaching presence manages the environment and focuses and facilitates learning experiences. With the combination of synchronous verbal and asynchronous written communication in the context of a cohesive community of inquiry, blended learning offers a distinct advantage in supporting higher levels of learning through critical; discourse and reflective thinking.

The range and quality of interactive dialogue that can be facilitated through blended learning is congruent with the widely accepted means of facilitating critical thinking and higher-order learning. Hudson (2012) argues, for example, “that the very basis of thinking is rooted in dialogue, drawing on a socially constructed context to endow ideas with meaning”. The emphasis must shift from assimilating information to constructing meaning and confirming understating in a community of inquiry. This process is about discourse that challenges accepted beliefs, which is rarely accomplished by students in isolation. At the same time, to be a critical thinker is to take control of one’s thought processes and gain a meta-cognitive understanding of these processes (i.e. learn to learn). A blended learning context can provide the independence and increased control essential to developing critical thinking along with a scaffold acceptance of responsibility for constructing meaning and understanding.

### **The Transformative Potential of Blended Learning**

As has been discussed, blended learning is an integration of face-to-face and online learning experiences—not a layering of one top of the other. From this perspective, the Internet has been considered to be a disruptive technology that requires a careful consideration of the educational goals, structures and processes. There is evidence that blended learning has the potential to be more effective and efficient when compared to a traditional classroom model (Heterick & Twigg, 2012 and Twigg, 2014). The evidence is that students achieve as well, or better, on exams and are satisfied with the approach.

Results to date show improved students learning in 19 of the 30 projects, with the reaming 11 showing no significant difference. Other outcomes achieved by the redesigns include increased course completion rates, improved retention, better student attitudes towards the subject-matter and increased student satisfaction with the mode of instruction compared to traditional formats. We believe that redesign is the watchword of technology’s promise for higher education.

There a variety of possible explanations for these outcomes. In essence, though, we assert that it begins by questioning the dominance of the lecture in favor of more active and meaningful; learning activities and tasks. In the studies reviewed by Heterick and Twigg (2012), typically, a large enrolment course replaces one or two lectures each week with any combination of online discussion groups, simulations, discovery labs, multimedia lessons, tutorials, assignments, research projects, quizzes and digital content. These may be effectively facilitated by teaching assistants under the supervision of a professor. The professor then has more time to give to individual students and enhance the quality of the course through sustained course development and innovation as well as teaching development. Twigg (2014) argues that perhaps, “*the most significant aspect of this process has been the need.....to teach the design methodology.....since neither faculty nor administrators traditionally employs this approach to restructuring courses using IT*”. Blended learning has enormous versatility and potential but concomitantly creates daunting challenges on the front end of the design process.

### **The front end of Blended Learning: Administration and Development**

Issues pertaining to the front end of blended learning (administration and development) fall into the following categories: policy, planning, resources, scheduling and support.

#### **(1) Policy**

Most traditional universities offer some form or forms of technology-mediated education to selected populations of students---often based on individual faculty interest. These programs or courses are typically managed by the individual faculties, or teaching faculty and require little administrative policy---because the number of students is usually quite small. However, a defining characteristic of blended learning is the ability of the Internet to provide an interactive learning experience to large numbers of students (example high enrollment and/or high demand courses) in ways that are accessible and cost effective.

Related to policy is planning. There are tow essential levels of planning required to develop sustain blended learning: strategic and operational; planning. Strategic planning involves the identification of needs, goals and objectives; potential costs; and available resources. Of the strategic planning aspects, cost identification is the most complicated and important. Costs that need to be determined will include technology, delivery model and schedules, human resources (e.g., administrative support, course developers, instructors and technical assistance) and infrastructure (e.g., hardware/software, Internet access and office space).

Operational plans are necessary to operationalize the goals and objectives in an action plan. With respect to blended learning, operational planning involves attending to the number of instructional components

including the following promotional and advertising strategies; creating relationships for shared resources (e.g., registration, fees); managing technology; and creating an affective assessment process.

### **Resources**

The need to carefully assess the resources required to implement and sustain effective blended learning environments cannot be over emphasized. The resources required fall into three broad categories: financial, human and technical.

Financial resources are necessary to initiate and support blended learning initiatives. New initiatives, such as blended learning, need 'seed money', but in the longer term may prove to be both more effective and efficient (Heterick and Twigg, 2012). Sustained incentives for computers and release time as well as support for instructional design and development are required. However, this cost is remarkably affordable and can be found in existing budgets with a reassessment of priorities. As such, it is essential that there be the commitment from senior administration.

Human resources are essential to the development and delivery of blended learning courses. Individuals with instructional design, curriculum development and technology skills are necessary to support teaching faculty new to blended learning. In addition to these skills, individuals who can provide personal attention and motivational strategies for teaching faculty who are not convinced of the value of blended learning approaches are required.

Finally, technical resources that are dependable and transparent are required to ensure that the technology can enhance the learning process---rather than obstruct it. This requires having course learning needs, is up-to-date and the technical tools are reliable and easy to use.

### **Scheduling**

Blended learning approaches require considerable thought to the scheduling of courses. Specifically, both teaching faculty and administration will need to rethink how courses are being offered. Will blended learning courses be scheduled in the traditional format? (e.g., 3 days a week for 1 hour). Or can be a more flexible format developed whereby flexible scheduling can be implemented in ways that provide learners and instructors with the ability to 'time-shift?' (In traditional higher education institutions, any kind of course scheduling changes required by the registrar's office change can be an enormous challenge).

### **Support**

Providing support for both students and teaching faculty is a critical component of blended learning. At a minimum, providing effective support for blended learning requires an understanding of the course management environment that students and teaching faculty will be using, in addition to situational, dispositional, informational and institutional barriers. More specifically, there needs to be a dedicated student service support center to help students with technology access, which includes not only access to a computer with the necessary software and Internet connections but also support with the skills necessary to succeed in a blended learning environment. Most traditional universities currently have adequate support services for their students' technology needs.

Teaching faculty also requires support services, but unlike their students, these supports are often not in place. Teaching faculty requires assistance with course development needs, time management of their learning curve and technical assistance. The most effective support systems for teaching faculty are those that provide a course development team for the development of blended learning courses. This team is typically comprised of the instructor as content expert, an instructional designer who assists with course design and a media specialist who assists with the technical creation of course materials.

### **Ingredients of blended learning**

The ingredients of blended learning are as following:

#### **1. Live Events**

Synchronous, teacher-led learning environment in which all the learners are able to participate at the same time. It can be in real classroom or can be virtual.

#### **2. Self-paced Learning**

Recorded live events, Internet based or CD ROM based, which helps the learner to learn at his own pace.

#### **3. Collaboration**

It implies a more dynamic communication and interaction among many learners that brings about knowledge sharing.

#### **4. Assessment**

It is both live and online measure of learner's knowledge to determine prior knowledge as well as to measure learning transfer.

## **5. Performance Support**

These are reference materials that enhance learning retention and transfer. It may be printable references, downloaded multimedia learning objects, documentations etc.

### **Blended Learning offers a more Effective Pedagogy in Higher Education System**

While there is no formula that will guarantee learning for every student in every context, there is extensive, well documented evidence about the kinds of teaching experience. This evidence tells us that students learn best when teachers create supportive learning environment. Thus, blended learning provides opportunities for:

1. More increase in active learning strategies.
2. More learner-centered focus.
3. A greater emphasis on peer-to-peer learning.
4. A change in the way faculty allocates time for increased mentoring of individual student's innovative instruction.
5. The possibility for interaction with remote expert or peer review of projects.
6. Enhance the relevance of new learning.
7. Facilitate shared learning of mathematics and of other subjects.
8. Make connections to prior learning and experience allows for more creative and interactive course assignments.

### **Access to Knowledge**

1. Assist the making of connections by enabling students to join or create communities of learners that extend well beyond the classroom.
2. Assist in the creation of supportive learning environments by offering resources that take account of individual, cultural or developmental differences.
3. Enhance opportunities to learn by offering students virtual experiences and tools that save them time, allowing them to take their learning further.

### **Models of Blended Learning**

Blended learning can be grouped into six distinct models based on the difference in teacher roles, physical space, delivery methods and scheduling. The six models of blended learning are as following:

#### **1. Face-to-face Driver Model**

#### **2. Rotation**

#### **3. Flex Model**

#### **4. Online Lab**

#### **5. Self-Blend**

#### **6. Online Driver or Enriched Virtual Driver Model**

1. **Face-to-Face Driver:** Teacher delivers the content face-to-face and use online as a supplement.
2. **Rotation Model:** A course or subject in which students rotate on a fixed time schedule between self-paced online learning and sitting in a classroom with a face-to face teacher or at the teacher's discretion between learning modalities, at least one of which is online learning. Other modalities might include activities such as small-group or full class instruction, group projects, individual tutoring and pencil-and-paper assignments.

#### **The rotation model includes four sub-models:**

- a) Station Rotation
  - b) Lab Rotation
  - c) Flipped Classroom
  - d) Individual Rotation
- a) **Station Rotation:** A course or subject in which students experience the rotation model within a contained classroom, or group of classrooms. The Station rotation model differs from the individual rotation model because students rotate through all of the stations, not only those on their custom schedules.
  - b) **Lab Rotation:** A course or subject in which students rotate to a computer lab or the online learning station.
  - c) **Flipped Classroom:** A course or subject in which students participate in online learning off-site in place of traditional homework. The primary delivery of content and instruction is online, which differentiates a Flipped classroom from students who are merely doing homework practice online at night.
  - d) **Individual Rotation:** A course or subject in which each student has an individualized play-list and does not necessarily rotate to each available station or modality. An algorithm or teachers sets individual student schedules.

3. **Flex Model:** a course or subject, in which online learning is the backbone of student, even if it directs students to online activities at times. Students move on an individually customized, fixed time schedule among learning modalities. The teacher of record is on-site and students learn mostly on the brick-and-mortar campus, except for any homework assignments.
4. **Online Lab:** An online lab delivers entire course through online but under bricks-and-mortar location. Often students who learn through online bal also take traditional courses.
5. **Self-Blend:** Students choose remote online courses to supplement their curriculum.
6. **Online Driver or Enriched Virtual Model:** A course or subject in which students have required face-to-face learning sessions with their teacher of record and th3en are free to complete their remaining coursework remote from face-to-face teacher. Many enriched Virtual programs began as full-time online schools and then developed blended programs to provide students with brick and-mortar school experiences. The Enriched Virtual model differs from Flipped Classroom because in Enriched Virtual programs, students meet face-to-face with their teachers every weekday.

Blended learning can support a variety of informal learning processes. This performance support function is an increasingly important part of the job for many corporate training departments. blended learning expands the traditional role of training beyond its usual scope of formal training by providing a robust set of tools that allow employees to obtain the information and instruction they independently and uniquely need, all within the daily flow of work. Blended learning captures the best of both worlds by allowing learners to pick an choose how they want to learn and offers them greater flexibility and convenience about when they want to learn.

Blended learning offers a variety of formal and informal learning assets to utilize within e-learning. Apart from the well-used instructor-led training, other formal learning options include virtual classroom training, games, simulations, testing and evaluation. Informal learning assets include online books and articles, videos, podcasts, learning and knowledge portals, social networks, wikis, blogs and forums and much more. One significant benefit of taking the blended approach is that we start to think of learning as more of a process than an event or series of events. Because it has so many modalities available, it can touch colleagues with a variety of learning opportunities, most of which occur or reside outside the traditional classroom. Retention of knowledge and applications of learning---and therefore lasting behaviour change---can really be multiplied as a result. It increases staff engagement as they realize that development is happening all the time and it's also increases involvement of supervisors and managers in the development of their staff. Successful adoption of a blended learning approach to enhance the effectiveness and efficiency of teaching and learning will require the following:

1. Creation of clear institutional direction and policy;
2. Frame the potential, increase awareness and commitment;
3. Establishment of a single point of support, quality assurance and project management;
4. Creation of an innovation fund to provide the financial support and incentives to faculty and departments to initiate blended learning course transformations;
5. Investment in establishing a reliable and accessible technology infrastructure;
6. Strategic selection of prototype projects that prove to be exceptionally successful exemplars of effective learning;
7. Development of formal instructional design support available through a blended format;
8. Systematic evaluation of satisfaction and success of the teaching learning and administration of new course;
9. Create a task group to address issues, challenges and opportunities as well as communicate and recommend new directions to the University community.

### **Implementing Blended Learning**

Implementing a blended learning program in our classroom or school isn't exactly simple. Careful planning and a strong understanding of blended learning will make the transaction much smoother.

1. Blended learning is a combination of online and in-person delivery that can come in several different forms.
2. Before start, create the conditions for success: Students need lots of support and some funding too.
3. Create a strategy and timeline.
4. Develop instructional models.
5. Decide on a platform and content.
6. Figure out what type4s of devices will be used.
7. Determine what infrastructure will be needed.
8. Integrate and implement.
9. Take advantage of professional development opportunities.
10. Use tech support as much as necessary.
11. Never forget to measure and assess successes and failures and adjust as needed.

### **Factors that Promote Successful Blended Learning in Higher Education**

It has been seen that the available literature on blended learning is dominated by insider accounts of its introduction in campus-based courses, generally using a learning management system and often including online discussions. These reports are often highly descriptive and factors that might promote successful blended learning are often hidden in the form of concluding observations and recommendations and rarely identified more explicitly. The recommendations that follow are grouped under four headings which have been developed from the available literature, where there is an overall emphasis on pedagogic factors.

The factors that promote and develop successful blended learning are as following:

- **Institutional Success Factors**

1. Blended learning models should be developed that could respond to local, community or organizational need rather than using a generic approach (Sharpe, Benfield, Robert, 2006). However, Mason and Rennie (2006) advocated putting the learners' needs first, ahead of the contest on the basis of the teacher in making such choices;
2. It is important that the institutional building blocks are in place including organizational readiness, sufficient technical resources, motivated faculty, good communication and feedback channels with students (Taber, 2007);
3. There is room for staff to develop their own meanings for blended learning, currently poorly defined to include face-to-face classes and active learning and build commitment to the concept (Sharpe, Benfield, Robert, 2006);
4. Blended learning should be introduced as a scholarly and transformative redesign process within the institutions that rebuild the course rather simply adding on the technology (Sharpe, Benfield, Robert, 2006; Littlejohn and Pegler, 2007; Garrison and Vaughan, 2008);
5. There should be institutional practice of carrying out regular evaluations and publishing the results (Sharpe, Benfield, Robert, 2006).

- **Regarding Teachers**

1. The importance of, and need for, continuing professional development for teachers with sufficient time of development should be acknowledged (Vaughan, 2007);
2. Ongoing pedagogical and technical support through membership of a blended community of practice is a proven model that sustains such teacher innovation (Garrison and Vaughan, 2008);
3. The importance of dealing with teachers' fears of loss of control, lower student feedback grades and general uneasiness about the impact of online learning on classroom relationships should be considered (Vaughan, 2007);
4. The impact on teachers' workload must be taken into account. Littlejohn and Pegler (2006) identified the costliness in terms of both institutional and teacher investment and suggest the creation of shareable and reusable digital resources in an effort to ensure that blended learning is sustainable.

- **Regarding Students**

1. Students' learning maturity and readiness for blended learning with its demands for independent learning must be considered (Tabor, 2007);
2. Student expectations, especially their ideas that fewer face-to-face classes mean less work and the need to develop more responsibility for their learning and time management skills must be taken into account (Vaughan, 2007; Tabor, 2007);
3. Consistent and transparent communication around the new expectations is needed in order to help students understand the blended learning process (Sharpe, Benfield, Robert, 2006).

### **IV. TEACHERS' ROLE IN BLENDED LEARNING**

One of the greatest challenges facing teachers today is meeting the changing expectations of students. Subjects must be offered which allow flexibility in terms of learning opportunities. Students are becoming more diverse in terms of socio-political backgrounds and as a result they bring competing personal needs and demands to their learning environments. Accommodating these needs is a necessity for teachers today. Blended learning strategies provide flexibility in terms of learning design for both the teachers and the student.

The growth of blended learning and its potential for the transformation of teaching and learning are enormous. The literature reveals that it has the potential to provide flexible, collaborative, student-centered, multimedia-rich, authentic, quality learning experiences (Miller & King, 2003; Palloff & Pratt, 2001). However, the research also clearly indicates that this potential cannot be realized without a fundamental shift in not only the institution and the learner, but also the pedagogy and the teacher (Miller & King, 2003). Such a shift requires, in turn, new models for preparing teachers who embrace innovation and change (Childs, 2004; Crichton & Labonte, 2003; Kemshal-Bell, 2001).

This fundamental shift in pedagogical methodology and the re-conceptualization of teaching that Brennan (2003) calls for recruiting “teachers and trainers who are both confident and comfortable with this new way of working” (Brennan et al., 2001, p 51). However, preparing for blended teaching represents a massive shift in theory and practice for many of these teachers. It appears that the time has come for a new model that introduces teachers, at a formative point in their teaching careers and later throughout their career, to the emerging body of knowledge of effective blended pedagogical practices. One of the most frequent questions that appear at this point is, “What is the role of teachers in blended learning?”

In the blended learning approach, a student’s day typically includes a combination of online learning and small group instruction time with teachers. This learning model shifts the classroom teacher’s focus away from more traditional curricular and administrative tasks in the direction of working with data and providing more individualized support to students. Because the focus in this model has shifted from planning lessons and delivering content to being a facilitator of student learning, the classroom teacher’s role can expand in challenging and stimulating ways. Rather than following the traditional roles of sharing content and grading papers, classroom teachers in the blended learning must:

### **1. Be willing to Learn**

In a blended learning program, the teacher should be prepared to:

Use data as an integral part of the planning process for each individual student, groups of students and the whole class. Use benchmark tests and other assessments to direct instruction at different levels (Individual, group, class).

To help teachers learn their new roles and to understand blended learning, many blended learning programs require that the teachers take a training themselves as part of the required professional development. Having an experience blended learning mentor as a guide and participating in training on the data management system is also important. With proper professional development, a “traditional” teacher can develop the data-analysis skills needed to get the most out of the blended learning model.

### **2. Be Open to new Teaching Strategies**

The blended learning teacher should:

Have a wide breadth of content knowledge in order to teach multiple subjects. Differentiate instruction based upon student needs (as determined by the data). Focus on academic intervention and enrichment.

While blended learning instructors still need to be able to maximize learning time and manage classroom effectively, they have more individual time with students and can give them the attention and support they need.

### **3. Be leaders**

To help guide students in a blended learning environment, teachers should:

Model learning and show students how to find information and answers (or ask the right questions). Be able to manage project-based learning activities. Have strategies in place to keep students on-task, engaged and motivated.

The blended learning instructor helped students move beyond simply, “regurgitating” rote responses to learning to apply content to new situations. Just as the teacher must interpret and analyze information, students need to learn to reason, integrate information and demonstrate knowledge through application.

So, what might blended learning mean to teachers? Continued growth as they modify their existing strategies to lead students to become independent learners themselves? Technology can also give teachers crucial information to understand individual needs of students to support and strengthen their learning. When teachers use good technology effectively, it provides them the power to become even greater experts in the content areas they teach.

### **Benefits in Blended Learning**

Blended learning is a natural idea of learning approach. This blended learning is taking the best from self-paced, instructor-led, distance and classroom delivery to achieve flexibility, efficiency and cost-effective learning. The following are some of the benefits of blended learning:

- 1. Enhanced Social interaction, communication and collaboration:** Blended learning connects people, activities and events through technology. it is a key tool for building and sharing cultural understanding on a global basis;
- 2. Offers flexibility and efficiency:** It combines offline and online learning where the online learning refers to the use of Internet in the learning activities. While an offline learning happens in a more traditional classroom setting. The Internet provides flexibility and efficiency in teaching and learning activities. The teaching and learning session can be conducted via video or teleconferencing where learners can attend the class session via online. Study materials and research resources are easily navigable over the web;

3. **Extend the Reach and Mobility:** The emerging of information and communication technology has changed the learning approach. With the increasing use of mobile and wireless technologies, the time and place for learning can take place anywhere at any time;
4. **Optimizing Development Cost and Time:** Blended learning combines different delivery modes that balance out and optimize the learning program development and deployment costs and time. Internet is tool that deliver online learning supports a greater range of learning styles and individual differences in learning at a minimum cost;
5. Face to face learning is interactive and enjoyable.
6. Opportunities to learn from each other collaboratively in online mode.
7. There is collaboration in content as well as the mode of delivery which is innovative in nature.
8. Save time and paper and provide feedback quickly to each learner.
9. Critical thinking is fostered.
10. Creative thinking processes are developed within a meaningful context.
11. Encourage lifelong learning.
12. Encourage learning across the curriculum by blending the boundaries of knowledge.
13. Research aptitude is ignited and initiated.
14. Team work and collaborative learning is fostered.
15. Proper utility of useful ICT resources.

### **Advantages of Blended Learning**

Blended courses integrate face-to-face and online learning. Online and classroom activities and course materials are selected to complement each other, to engage students and to achieve specified learning outcomes. Many instructors favour blended learning because it can:

1. Increase the amount and quality of faculty-to-student and student-to-student interaction;
2. Increase opportunities for active and collaborative learning and assessment before, during and after lectures;
3. Help students prepare for class discussions or lab work;
4. Facilitate more varied and engaging media for presenting course content;
5. Address learning bottlenecks via new types of interactive and independent learning outcomes;
6. Allow class time to be spent on active learning activities by shifting background or foundational content to the online environment;
7. Help to create a sense of community in large classes;
8. Allow students to access course materials when and where they want, at their own pace.

Students overwhelmingly have reported that they prefer and enjoy the blended course format. More specifically, here are the main reasons that students prefer blended learning:

1. Students have greater time flexibility, freedom and convenience by working part of the time online from home due to decreased commuting and parking hassles;
2. Students are likely to interact more with the instructor and fellow students since there are numerous opportunities to do so both in class and online;
3. Students have access to unlimited up-to-date resource available via the web;
4. Students often develop or enhance skills in time management, critical thinking and problem solving;
5. Students enjoy increased success as measured by fewer course withdrawals and somewhat higher grades;
6. Students can participate more in class discussions since they can choose environment---online or face-to-face --- in which they feel more comfortable;
7. Students have more time to reflect and refer to relevant course and other research materials when working and writing online than when responding in class;
8. Students usually receive more feedback and more frequent feedback from their instructors;
9. Students can acquire useful skills from using the Internet and computer technology.

### **Importance of Blended Learning**

Learning required some sort of experience to take place in learning environment which may be quite different for each learner in that we have to consider differences in (Banathy 1988):

1. Interest spans;
2. Needs;
3. Aptitudes;
4. Achievements;
5. Variations of time needed to master a specific learning task;
6. Abilities to deal with abstractness or concreteness;
7. Degree to which a learner needs to be guided;
8. Abilities to deal with complexities;

9. Abilities to manipulate objects (such as equipment or machines);
10. The degree to which imagination can be involved;
11. Degree to motivate creativity;
12. Problem solving differences

### **Disadvantages of Blended Learning**

The disadvantages of blended learning are as following:

1. Lack of a firm framework to encourage students to learn;
2. A high level of self-discipline or self-direct is required, learners with low motivation or bad study habits may fall behind;
3. Absence of a learning atmosphere in e-learning systems;
4. The distance-learning format minimizes the level of contact, e-learning lacks interpersonal and direct interaction among students and teachers;
5. When compared to the face-to-face learning, the learning process is less efficient.

## **V. SMART CLASSROOMS AS A POTENTIAL TOOL FOR BLENDED LEARNING**

Smart classrooms are technology enhanced classrooms that foster opportunities for teaching and learning by integrating learning technology, such as computers, specialized software, audience response technology, networking and audio/visual capabilities. The smart classrooms demand learning initiatives that are able to assist educators to make ICT integral to learning. These smart classrooms provide strategies about engaging the digital generation, improving individualized learning opportunities, sparking innovation in learning, enhancing teachers' digital pedagogy and getting the best from schools' ICT investment. The challenge lies in shifting from teaching and learning about ICT to teaching and learning with and through ICT. This means that instead of using technology to do old things in new ways, we want to do new things in new ways and use technology to enable and transform teaching learning and the curriculum.

### **Smart Classrooms Vis-à-vis Blended Learning**

Smart classroom uses following elements, mixed in varied proportions according to an organization's requirements of blended learning:

- **Learning through information:** Material based information is the first coherent step towards starting a learning program. Web based material can now be handed to the learners; various e-learning techniques can render the learning program easy to deliver and fast to be implemented. Making the information accessible all the time will give learners the liberty of scrolling through the content at their own convenience, which in turn, will enhance understanding and enthusiasm.
- **Learning through Interaction:** The learner instructor, learner-content, learner-learner, and learner-infrastructure interactions become all the more important in a blended-learning environment. Web can assist all the above mentioned forms of interaction, which together, help retain the knowledge that is acquired through information. Web simulations of real life situations allow learners to apply their knowledge practically, without the possibility of them affecting your business directly.
- **Learning through Collaboration:** Collaborative learning includes peer-to-peer discussions, conference calls, chat, team rooms and instant messaging. Technology has enhanced the concept of collaboration manifold, where learners, even though geographically remote, can communicate in real time. The collaborative environment also heightens the chances of collaboration between e-learners and subject matter experts (SMEs).
- **Learning through Classroom Interactions:** Conventional, tested and, by far, one of the most effective approaches to learning, classrooms are the best places to personally connect to peers and instructors. No technology can replace the advantages of this approach, which is exactly why no e-learning or blended learning model will skip this element for any reason. But as one would like to believe, blended learning has never attempted to replace classroom-based learning.

### **Potential Constituents of a Blended Learning Approach:**

The notion of blending is nothing new. Good classroom teachers have always blended their methods---reading, writing, lecture, discussion, practice and projects, to name just a few, are all part of an effective blend.

### **Virtual Fieldtrips**

Blended Learning Virtual Fieldtrips can be used in nay number of ways to serve a variety of educational goals. Using blended learning through the virtual fieldtrip is a wonderful opportunity. The virtual fieldtrip experience is an excellent model of a teaching strategy that was not possible before the advent of computers in the classroom.

## **Blogs**

Blog is a term coined for the combination of two words, web and log. As part of blended-learning project, it is an asynchronous form of online discussion. A blog is a publicly accessible website which contains a journal or diary of sorts. Any one can initiate a blog either as a part of another website or personal web page or a blog can stand alone.

Blogs offer a forum for many people to state their opinion or comment on others opinions. Blogs could provide a great medium to enhance student writing through the use of technology.

A good blend would provide optimum role of live interaction. It is essential to provide a good support and training model and should keep the cultural components in mind. A successful blend would strike the right balance between innovations and mass utility. Some of the basic factors which should be considered in identifying the blend are:

1. Course instructional goals;
2. Student profile;
3. Teacher experience and teaching style;
4. Cultural dimensions;
5. Resource availability and
6. Budgetary requirement for training implementation.

## **Challenges in Implementing Blended Learning**

The challenges in implementing blended-learning environment can be looked in two different perspectives---learners' perspective and teacher perspective. In focusing on the learners' perspective, there is a need to consider the learning style and perceptual skills and abilities of students while designing blended-learning strategy. Learner's proficiency in using ICT is also important in a blended-learning environment. Therefore determining the skills and the ways students acquire and construct knowledge online a very important while designing blended-learning strategy.

One of the major challenges the teachers faces while designing a blended-learning strategy is to determine the balance between online and face-to-face instruction. There is a need of great expertise on the part of the teacher to design the strategy by considering both the educational provisions of the institute and the learner's needs in a blended-learning environment.

The other most common challenges in ensuring positive learning outcomes from blended learning are:

1. Some students are unprepared fro a shift in the focus of classroom-based work and for assuming responsibility for their learning;
2. Not all students are adept with technology and some struggle with its use ----hence the need for quality help-desk design support;
3. Instructors can sometimes overload students with content rather than use principles of instructional design to re-think what and how students learn;
4. Online learning components can be passive and content rich rather engaging and challenging;
5. Some faculty is sometimes reluctant to change their classroom behaviour significantly, even though blended learning requires this. Some online materials in blended learning are simply copies of lecture notes, Power Point slides and some readings.

## **VI. CONCLUSION**

Today it has become inevitable that campus-based higher education institutions will adopt blended learning approaches in a significant way. As has been demonstrated by several higher educational institutions, once there is clear policy and strong leadership, the evolution will be quick. In a matter of few short years, higher education institutions can be transfor4med in a manner consistent with their values and mitigating the fiscal and pedagogical challenges and deficiencies currently challenging the quality of the classroom experience. The academic benefit, evidence and competitive advantages are clear; only the will and commitment remains. Blended learning can begin the necessary process of redefining higher education institutions as being learning centered and facilitating a higher learning experience, we explore the use of blended learning, it is important that we assess and evaluate its effectiveness. Tracking transformations resulting from the sue of blended learning approaches, with respect to learning outcomes, student satisfaction, retention and achievement, are important to use as baseline measures of change that result from blended learning courses. In addition to assessing the learning outcomes, the learning process should also be assessed. Assessing and evaluating the effects of blended learning on the learning process in terms of higher levels of learning, critical and reflective thinking is a priority. It is essential that researchers begin to explore the impact of blended learning in achieving more meaningful learning experiences.

In recent years, many organizations and higher educational institutions have been heavily investing in integrating technology into the learning/teaching process. Nowadays, almost all corporate learners have access

to computers and the Internet. When used in a structured way, blended learning can allow organizations to mix different teaching materials and tools into an effective, integrated learning experience, giving learners an ample of opportunity to move from passive learning to active learning.

“.....Blended learning environments can create more and better opportunities for teacher collaboration, enable differentiated staffing and boost meaningful professional development opportunities.....With sophisticated data systems, teachers have a flood of expanded and enhanced student data at their fingertips-----improving efficiency and cutting down on time spent with routine tasks and record keeping. Time saved from the thoughtful implementation of technology can be reinvested working with students, collaborating with other teachers and developing new roles.....Truly understanding the potential of blended learning leads to the realization that teachers become even more important in a personalized learning environment”. Of course, no educational model is one-size-fits-all, and some hybrid classrooms are probably more effective than others. According to a scientific literature review published by the Australasian Society for Computers in Learning in Tertiary Education, a number of factors impact the success of hybrid learning. Teachers must be committed to a well trained in blended and hybrid education and its technologies, and students must have a clear understanding of what is expected of them in hit s new environment. As blended learning becomes more common, schools and professors will likely understand and implement it in a better way. Yet even now, early in the game, blended education shows promise, making this an exciting time to be a student. Not all students learn the same way. This is not a particularly novel concept, but it is an important one. This is blended learning’s real strength: it transforms a largely transmissive method of teaching---say a professor lecturing for what feels like an eternity---into a truly interactive one.

Blended learning gives learners and teachers a potential environment to learn and teach more effectively than any other method of teaching. It offers learners the opportunity, “to be both together and apart”. A group of learners can interact at anytime and anywhere because of the benefits that computer-mediated educational tools provide. Blended learning provides a ‘good’ mix of technologies and interaction, resulting in a socially supported, constructive learning experience. Blended learning holds promise for every individual learner. Blended learning has been implemented in various formats in schools and higher educational institutions in order to build and create a new revolution in this present digital age society.

In a blended learning approach, attention is given to the overall instructional design of learning experience. While thoughtful planning is essential, blended learning is a fluid process whereby learning needs, moments of insight and unique pathways evolve. Ideally, the learner is offered more choice in how the learning experience unfolds. This kind of flexibility makes it easier to differentiate instruction, satisfying the needs of a diverse population of learners. Technology is used as a tool for learning and to promote a discovery-based approach to online learning and is not necessary in all blended learning scenarios.

Blended learning is a student-centered approach to creating a learning experience whereby the learner interacts with other students, with the instructor, and with the content through thoughtful integration of online and face-to-face environments. A well designed blended learning experience thoughtfully organizes content, support materials and activities via synchronous and asynchronous learning events, all of which are delivered in a variety of modes ranging from traditional lecture to online tutorials. Communication and collaboration are necessary functions of a blended approach. Because formative assessment is embedded throughout learning events, the learner assumes responsibility for his or her learning.

In contrast to teacher-centered, rote learning approaches, blended learning environments provide multiple ways to access content and to demonstrate mastery. As a result, they lend themselves more readily to differentiation of content and process. A blended approach also gives the learner the opportunity to be more responsible for his or her learning, which creates a learning situation that may be more meaningful on an individual level. Because the learner comes to construct knowledge through personal effort, she or he is more likely to demonstrate understanding beyond rote memorization, and to transfer what she or he has learned to new settings.

Thus, to close, as we explore the use of blended learning, it is important that we assess and evaluate its effectiveness. Tracking transformations, with respect to learning outcomes, student satisfaction, retention and achievement, are important to use as baseline measure of change that result from blended learning courses. In addition to assessing the learning outcomes, the learning process should also be assessed. Assessing and evaluating the effects of blended learning on the learning process in terms of higher levels of learning (e.g., critical and reflective thinking) is a priority.

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