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The concept of blended learning mode

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Abstract

Education is the building block which helps to mould and strengthen one's intellect. It is something done to discover, understand, and excel in what one is passionate about. Education during Vedic age emphasized on values such as humility, truthfulness, self-reliance and respect for all creation. Students were taught how to balance between human beings and nature. Earlier, Teaching and learning followed the tenets of Vedas and Upanishads. The ancient education system focused mainly on the holistic development of the students thus preparing them for life. The tradition carried to the second millennium but at the same time better innovations should be introduced to refine and transform the teaching and learning experiences in positive manner. The world is changing constantly influencing the various domains especially in the education domain. The elaboration of the digital literacy platforms has a huge impact in educational institutions which ultimately put the traditional styles nearly in the aft seat. However, there are demands for both technology and traditional learning methods. This art of combining digital literacy tools with more traditional classroom face to face tutoring gave birth to the Blended Learning. Blended Learning is not a mere mix of online and face-to-face mode, but it is a well-planned combination of meaningful activities in both the modes. This mix demands consideration of several factors especially on learning issues and the learner-centred educational terrain. Blended Learning made the role of teacher from knowledge provider to coach and mentor making it flexible. This shift does not mean that teachers play a passive role in students' education. This new literacy benefits scholars and preceptors stoutly and furnishing pupil authorization and space to come active learners who gain knowledge helps them develop tone- reliance. The further scholars work singly, further time opens up for preceptors to give face-to- face support and effectively perfecting isolation. Blended Learning provides teachers with an accurate picture of how each student is doing yielding more frequent and more personal interaction with students. Teachers get opportunity to deepen and strengthen student-teacher relationships.

Keywords: Blended learning, urban, habits, attitudes, education

Introduction

The educational system presently is in a transition stage. To meet the challenges of expansion and for catering individualities need it's trying to borrow new technologies and exploring new paths to reach the thing of quality educational openings for all, at the same time due to colourful factors like deficient budgets, lack of installations, advantages of face to face commerce, it isn't fully ready to leave the traditional modes of knowledge transfer. Indeed the scholars are in a state of binary mind.

When a group of school-teacher trainees were inquired about the mode of tutoring they will prefer from tradition classroom tutoring and ICT supported tutoring the scholars were nearly unevenly divided between both the choices. The traditional mode of tutoring in malignancy of its many failings provides a important demanded mortal touch to the tutoring literacy process. Personality of the preceptors directly influences the blooming personality of the scholars. Only face to face commerce meets the affective objects along with cognitive and psychomotor. The traditional approach helps only in developing a strong value system. Social chops like cooperation, sharing, expression and esteeming other's views are more fluently developed in traditional mode of tutoring. Scholars learn not only from books, or from preceptors tutoring inside classroom but also from the co-students, through their peer group commerce, they learn numerous chops in playground and their small social relations in canteens, chesterfield etc. All this is necessary for a proper personality development.

Traditional approach may benefit to certain extent but it isn't free from scarcities. Following are the shortcomings listed:

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- It's failing to meet the individual requirements of all the scholars in the class principally due to indecorous pupil-schoolteacher rate
- It isn't conforming itself to meet the challenge of tutoring physically challenges scholars
- Preceptors aren't trained for integrated classroom.
- It isn't fit to meet the challenges put forward by the irregular scholars as attendance is must and evaluation system depends on the periodic examination. However, due to severity the irregular scholars are in a way barred from the main sluice of academy system, If scholars fail to take the examination his whole time is a waste.
- Also absence of professional counsellors and absence of right station of the preceptors and dearth of follow up conditioning in the seminaries the children who discontinue the academy for any reason don't get the chance for entering in the formal educational system again.
- School isn't suitable to reach every child and so education for all is still a far observed thing
- Children from deprived groups, from the areas that are geographically insulated and medically unfit scholars aren't suitable to gain benefit from this formal traditional mode of tutoring.
- At the same time scholars have to suffer due to dearth of preceptors, their literacy has numerous inscrutability due to hamstrung preceptors.
- Course aren't regularly revised, books aren't streamlined and preceptors aren't interested in upgrading their knowledge and professional chops, the result is that our scholars aren't well set to meet the demands of the ultramodern request and professions.

In the realm of teaching-learning process life-skills are much important than memorizing concepts and theories. This makes it very challenging for the teacher to approach an individual merely using traditional methods. As a result, it is important for the teacher to go beyond traditional styles of teaching and be more creative and in terms of enhancing students' participation. Information nowadays is available abundantly over the internet easily accessed by all. So, the goal will be updated with the trends of technology and information and be proactive.

To make their knowledge supplement with the present technological advancement and globalization, to minimize the teaching debts, to enhance the quality, to increase pupils exposure ICT supported teaching learning process is a good option. ICT supported tutoring provides new dimension to tutoring literacy process, introduces scholars to the wide pool of knowledge and opens before them innumerable openings to learn, forget and relearn, All types of learners whether in-service, physically challenged all can be advantaged by this mode of teaching. It helps reaching to all students. Swami Vivekanand said "if people cannot reach school schools should reach them", ICT supported learning is exactly doing the same.

Analysis of both the traditional mode of teaching learning process and ICT supported teaching learning process lay out that both have countable graces and faults, both are victualing different essentials, demands and expectancies from the educational system, so the result is to deliver and design such a system that's predicated on an intertwined approach, a system that incorporates the main features of both traditional approach of tutoring and ICT supported tutoring. The demand of moment is an approach that blends the advantages of both

the modes for the pupil's literacy i.e. blended learning.

Blended Learning

Blended learning isn't a bare blend of online and face-to-face mode, but it refers to a well-planned combination of meaningful conditioning in both the modes. The blend demands consideration of several factors, mostly concentrating on learning issues and the learner-centred educational terrain. Given the emergence of digital technologies and the arising significance of using technology for teaching-learning at all degrees from school to higher education, the National Education Policy (NEP) 2020 recommends for use of amalgamated models of literacy. The NEP-2020 states that while promoting digital literacy and education, the significance of face-to-face in-person literacy is completely honoured. Consequently, different effective models of mingled learning are linked for applicable replication for different subjects.

Blended learning is the notion that includes framing teaching learning process that incorporates both face to face tutoring and tutoring supported by ICT. Blended learning incorporates direct instruction, circular instruction, collective teaching, and individual computer supported learning. It includes:

- **Face to face teaching:** Blended learning provides full dimension for traditional classroom teaching where pupils get ample of time to interact with their teachers and accordingly develop mastery in their personality, geste and value system. Face to face interaction helps in coetaneous communication. Teachers and pupils both are capable to get immediate feedback that in turns is favorable for teaching learning process. Face to face interaction is largely motivating for both the teachers and pupils and it gives a natural touch to the process.
- **Student interaction with course content:** Traditional mode of teaching and the school premises provides pupil time to interact directly with their course content through printing material and ICT intermediated learning provides them circular interaction with their course content in a adaptable and distinctive interesting way. The videos deliver needed representationalism to the content and sharing on blogs and visiting e-books supply new and streamlined perspectives to the content
- **Peer group interaction:** Inside the school premises scholars learns by formal means and they also learn informally when they interact with their peer groups. Many demanded life skills and social values are exercised in non-formal interaction with their peer groups. School premises provides numerous openings for this during playground activities, social exchange during free time
- **Group discussion and exchange of ideas:** Classroom teaching not only provides pupils interaction with educators but well-designed strategies give pupils to endure discussions with their class mates on different aspects of the course and exchange ideas. This helps to develop confidence in pupils, remove their hesitance and develop the skill of communicating effectively and also develop good listening skill.
- **Accessing e-library:** It is an essential part of ICT supported teaching learning in any blending learning mode. In traditional mode pupils get access to school library that's limited but digital library gives them access to different books related to their content and on diversified areas. This widens their outlook and enriches

their knowledge, this helps in meeting the cognitive goals

- **Virtual classroom:** This provides student an option to learn anything from anywhere, anytime and from anyone. Pupils can be a part of a virtual classroom meeting with his co-students and educator in cyber place irrespective of the geographical boundaries. School can also deliver provision for it so that the system gains adaptability and pupils who cannot attend school regularly can gain advantage from this mode. As well as pupil can get attach to other experts and enhance his knowledge. With world moment turning into a global village, pupils through this mode will be at par with his counterpart at any other part of the world and will get native experience also.
- **Online assessment:** Immediate feedback is a crucial factor in education as it motivates the learner and is grounded on principles of readiness. Online assessment helps to make evaluation system more productive, transparent and more fast. It becomes further dependable and objective.
- **E-tuitions:** Pupils have different necessities. Many of the students don't get benefits from classroom teaching as they continuously demand individual guidance and complete attention. Similar students may choose the option of e-tuition; that is meeting a private teacher and getting individual guidance in cyber space via video conferencing
- **Accessing and maintaining educational blogs:** Students get less chance for nurturing their creativity in traditional classrooms because of rigid time table and lot of pressure of class work, assignments and getting along with examination stress but educational blogs provide pupils a platform to show their creativity and can get feedback also. In addition to it, educational blogs are a good platform to talk over contents of importance that aren't the part of syllabus like those related to social problems, political issues, and other issues relative to youths like medicines addiction, delinquency, population education etc.
- **Webinars:** Webinar is an also a marker of blended learning supported by ICT format. It means that students participate in seminars on different contents relative to them via internet connection. All the participants are connected as available like Skype, Google talk etc. and present their paper. After presentation, pupils participate in discussions through video conferencing
- **Viewing expert lectures in YouTube:** The blended learning provides pupil to gain advantage of the experts of the course content they're studying as they can fluently watch the different lectures by well-known experts from different fields available on you tubes. In addition to it college can also upload video of lecture by its own teachers so that if pupil isn't capable to attend the college he or she can avail this facility and gain benefit of this teaching
- **Virtual laboratories:** It can be used in professional courses where the laboratory work is really critical and occasionally the cost of establishing a well-furnished laboratories isn't achievable and in limited cases the experiments are dangerous and it isn't safe for pupils to handle those stuff also in similar cases pupils can access virtual laboratories and can learn need skills by working in this virtual laboratory.

Main Characteristics of Blended Learning

The main features of blended learning are

- **Students have the option of the two modes:** Students in blended learning can opt either the traditional mode of classroom teaching where they can get individual interaction with school-teacher and their classmates or they can choose ICT supported teaching learning. This largely depends on the nature of content and goals being targeted. Eventually course developer or teachers themselves decide on the mode suitable for content being dealt with.
- **Teachers are well versed with both the modes:** It is an important point of the blended learning that educators are authentically dynamic, techno savvy and completely trained to work efficiently in both the formats-traditional classroom format and ICT supported format. They will be well equipped in using traditional styles and other modern technologies
- **Students get face to face interaction as well they interact in virtual space:** Students get ample of time to interact with other students pursuing same course. They can interact with them inside college premises and also in virtual space. Consequently their group come really large and has important diversity so the pupil's knowledge becomes wide and they also develop a feeling of understanding, love and harmony with students of other cultures and countries.
- **Students get full experience in using new technology:** The present century is the century of ICT. Today the illiterate is not only the one who cannot read and write but a person who is not well versed with modern technologies is also illiterate Today all professions demand expertise in ICT so blended learning help to make student's ICT experience rich. Students involved in blended learning gain capability to exploit available technologies to the fullest of their benefit
- **Students get training in different life skills:** Life skills are those skills that are needed to lead a happy peaceful and successful life. The major life skills are empathy, decision making capability, love, patience, communication, self-management, critical thinking. The blended learning helps the students to practice these skills. Students get acquainted with few skills like love, empathy, patience in classroom through his teachers, classmates, and few like self-management, decision making, critical thinking, communication through the online experiences.
- **All round development of personality is targeted:** In blended learning the students get full opportunity for all round development of the personality. All the aspects of personality namely- cognitive, physical and emotional are developed through blended learning which is difficult to achieve in traditional mode or ICT approach if followed in isolation. Tradition classroom teaching is helpful in memory level and understanding level of teaching and so help in cognitive domain development and at same time teacher's behaviour, playground experience and social group with classmates develop affective and physical domain at same time online experiences help in reflective level of learning so develop higher faculties of min and social networking sites and other social interactions though internet help in right type of value development.

- **Physical development is possible with in school campus:** The online learning and ICT supports teaching learning process is often targeted with the blame that it ignores physical development of the students. The blended learning overcomes this limitation. As it included school experience also so student get time for playing, physical work, yoga inside the college campus.
- **Students get wide exposure and new perspectives of the course content:** Due to variety of experience students get wide exposure and their content knowledge is enriched, they get to see various new dimensions of the content gain practical useful knowledge.
- **It has a human touch:** Due to physical presence of teacher via traditional approach students get that human touch which is very necessary for balanced student's emotional quotient and very necessarily up to secondary level.
- **It provides multicultural and multi dimension approach to teaching learning process:** Blended learning approach provides student opportunity to communicate and share their views and feeling with the students all over the world thus it makes teaching learning process multicultural and variety of experience bring with it the interdisciplinary and multidimensional factor also.
- **Makes teaching learning process child centred:** Blended learning is designed to provide maximum gain to students and thus reach the goal of child centred education.
- **Diverse role of teacher:** Teacher in blended learning is playing different role, traditional role of a teacher in classroom, she acts as motivator, as a resource person, as an organiser, as a developer, when she develops content to be provided through ICT, as a guide on the side. Thus teacher gets freedom from the monotonous traditional roles and she can try her hands in diverse areas that are good for her professional growth also.
- **Student constructs knowledge rather than just consuming it:** Blended learning also includes constructivism. Students construct their own knowledge rather than depending on others to design teaching-learning strategies for them.

Prerequisite of Blended Learning

Implementing blended teaching is not an easy task. It requires certain fundamental preparations in all the elements of teaching learning process- teacher, student, content designing, and infrastructure. The following are the basic requirements for implementing a successful blended learning.

- **Well trained teachers:** Though child centred but teachers are an important pole of blended learning. Teachers should be well acquainted with the concept of blended learning and fully trained and skilled to blend both types of approaches- tradition and technological. They should be trained to develop content in digital form so that it can be available to students online. They should be well versed with internet browsing and internet terminology should be aware of all the websites that can be useful for the students while learning online. Teacher should know how to utilize blogs, you tube facility, software like Skype, goggle talk and others for video conferencing and social networking sites for educational purposes.
- **Teachers with scientific attitude:** It is very important that teachers have scientific attitude. They should have

good observation skill, they should be optimistic should have problem solving skills. Scientific attitude will help the teachers to deal positively with failures she will get while working on this innovative concept and will help to analyse the conditions objectively. This right type of scientific temper will automatically filter from teachers to students

- **Teachers with wider outlook and positive approach towards change:** As it is must for the success of any innovative idea or method blended learning process also need teachers that have a wider outlook and should be flexible, they should be ready to accept the changes and very innovative and dynamic.
- **Complete facilities like well-furnished computer lab, internet connection, provision for video chatting:** It is the compulsory factor of blended learning. Blended learning largely depend on infrastructure, school should not only have good classrooms but should also have a well-furnished compute laboratories with sufficient number of computes to cater to all the students of one class and the internet facility, a Wi-Fi campus if possible.
- **Students have access to internet at their private computers:** In addition to school having fully ICT friendly campus students should have basic hardware support to learn online and offline at their residence also. This requires a positive attitude and good investments schemes from the government.
- **Flexibility in the system:** The system should be flexible, flexible time table, examinations system all this is very crucial for implementing blended learning.
- **Fully aware and agreed Parents:** The parents should be made well aware of this innovative approach to teaching so that they are ready for it and support their wards for the blended learning and can accept that this deviation from traditional teaching is beneficial for their children
- **Formative evaluation and continuous internal assessment:** The school authorities and higher educational bodies should be ready to completely implement continuous internal assessment (CAI) and other tools of formative evaluation as summative evaluation is not supported in the blended learning. The provision should be made for online examination for making the system more flexible. These are few essentials and basic requirements without which the blended learning cannot be executed successfully.

Role of Teachers in Blended Learning Environment

Blended Learning shifts the teacher's role from knowledge provider to coach and mentor. This shift does not mean that teachers play a passive or less important role in students' education. Quite the contrary—with Blended learning, teachers can have an even more profound influence and effect on students' learning. Traditionally, classroom instruction has largely been teacher-directed, top-down, and one-size-fits-all, with a bit of differentiation thrown in, but with Blended learning, it now becomes more student-driven, bottom-up, and customized, with differentiation as a main feature. Much of this new learning dynamic is due to the enhanced role technology plays in instruction. Blended learning provides an appropriate balance between online instructions, which offers the interactive, tech-based learning, individualized pacing, and privacy that keep students continuously engaged and motivated, and teacher-led instruction, which personalizes the learning experience and adds the human elements of encouragement, compassion, and caring guidance that only teachers can give.

This new learning dynamic benefits students and teachers alike. Giving students permission and space to become active learners who gain knowledge directly lets them assume some control over their learning and helps them develop self-reliance. As more students are working independently, time opens up for teachers to provide face-to-face support and individualized instruction more frequently for more students, effectively improving differentiation. Blended learning provides teachers with a fuller, more accurate picture of how each student is doing. Blended learning yields more frequent and more personal teacher interaction with individual students, teachers have the opportunity to deepen and strengthen student/teacher relationships.

The trust that comes with close relationships can give teachers insights into students' personal struggles and needs -insights which empower teachers to comfort and coach students through challenges that often serve as obstacles to learning.

Role of a Learner in the Blending Learning Environment

- **Increase student interest:** When technology is integrated into school lessons, learners are more likely to be interested in, focused on, and excited about the subjects they are studying.
- **Keep students focused for longer:** The use of computers to look up information & data is a tremendous lifesaver, combined with access to resources such as the internet to conduct research. This engagement and interaction with the resources keeps students focused for longer periods than they would be with books or paper resources, this engagement also helps develop learning through exploration and research.
- **Provides student autonomy:** The use of eLearning materials increases a student's ability to set appropriate learning goals and take charge of his or her own learning, which develops an ability that will be translatable across all subjects.
- **In-still a disposition of self-advocacy:** Students become self-driven and responsible, tracking their individual achievements, which helps develop the ability to find the resources or get the help they need, self-advocating so they can reach their goals.
- **Promote student ownership:** Blended Learning instills a sense of 'student ownership over learning' which can be a powerful force propelling the learning, It's this feeling of responsibility that helps the feeling of ownership.

Advantage of Blended Learning

Blended learning has following advantages:-

- As part of learning is done through ICT, online or offline mode so teachers and students get more time in the classroom for creative and cooperative exercise.
- Students gain advantage of online learning and CAI without losing social interaction element and human touch of traditional teaching
- It provides more scope for communication. Communication cycle is completed in blended learning which is not possible if we follow only traditional approach
- Students become more techno savvy and they gain enhanced digital fluency
- Students have more strengthened professionalism as they develop qualities like self-motivation, self-responsibility, discipline
- It updates course content and so gives new life to established courses

Relevancy of Adapting Blended Learning in India

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 materials and possibly some additional activities are delivered online. In other cases, most of the class activities occur online, with infrequent meetings in person to solve problems and support community building. In some blended arrangements, students may choose which activities to complete online and which to complete in a classroom. Ideally, blends are personalised so individual students have the blend that best fits their age, life circumstances and learning needs. These are called à la carte models.

Students choose what to take fully online, what to take fully in person and, when the design is available, blended courses where they choose when to go to inperson classes and when to watch videos, download readings and complete assignments online. This kind of personalisation is not always available. Most important is ensuring that students are able to function well as learners with any delivery method, single-mode or blended, even if it is not their preference or the best situation for them. Teachers are valuable coaches for helping students manage in any learning situation; it is up to teachers and learning designers to offer blended activities that best suit the subject, the learners' needs and the curriculum requirements. Not all unique and interesting BL designs are one-size-fits-all model.

Indian education system is suffering from various problems like failing to expand the system to provide provision of free and compulsory education to all children, abating to maintain quality along with increasing the quantity, education curriculum is not able to meet demands of international market and not even able to conserve and propagate Indian value system, teachers are not fully dedicated towards their profession and teacher's inefficiency is adversely influencing the learning of the students. There is an urgent need of some radical steps and major revolutions within to overcome the challenges. Blended learning to some extent will help in solving these problems of Indian education system.

- In our country due to large population the formal schools system is not able to provide equal educational opportunities to all, so blended learning will be a good option as it will make the area of educational opportunities wider and education will be able to reach to more children.
- The technological and scientific development continuously demands the education system to match their pace and correlate with them so that students are able to cope up with the fast changing market. Technology and scientific field are most dynamic and changing at great pace incorporating new innovations so the content transmitted to students have to be revised accordingly but in India courses are generally not so frequently revised and updated so if blended learning will be adapted students and teachers can easily update their knowledge and skills
- Dearth of good teachers is also a major issue. Teachers are less in number, still many primary schools are not having appropriate teacher pupil ratio, this problem exist not only in government sector but private institutes are in a similar state. There is another serious issue that teacher working are also not very dedicated towards the profession so blended learning is a good option as online learning can be a substitute of teacher.

- Generally problem of indiscipline, irregular attendance and dropouts etc. exist because our traditional mode is not able to cater individual demands of every student and is not making the delivery of this content interesting for the students. Moreover course is not focussed, students are not confident and secure of their future so this unrest and stress leads to the problem of indiscipline but blended learning will be a combo solution to all these problems. As discussed above blended learning provides variety of experiences to the students, make them active and they remain in focus of teaching learning process due to increased involvement and bearing the responsibility of their learning themselves make students more disciplined. And as blended learning is giving students more upgraded and quality education that is from dynamic resource so learning thus becomes more purposeful.
- Still the education for all is a major challenge. Constitution provides the provision of free and compulsory education for all the children up to age 14 but our system is not able to meet this goal also. But if our educational institutes implement blended learning then they can easily increase the enrolment irrespective of geographical boundaries.
- Educated students are also not efficient and skilled to meet the demands of global market so suffer unemployment but as discussed above the blended learning will help students to master all modern techniques and life skills that will help them in leading a successful life.
- The education of special children also poses problems but blended learning with its diversity can easily cater to the needs of special children like those who are brilliant can satisfy their thirst of knowledge in blended learning, blind students can easily be educated in blended learning as ICT supported teaching learning process will provide technical support in their learning, similarly physically challenged can also become part of main stream education and get enrolled in good institutes without bothering about the distance as blended learning will help them study online and from home.
- The quality of education largely higher education is also a serious issue. None of our higher education institutes are among the top institutes of the world so to exist in the completion and to enhance quality adopting blended learning will be a good option. When students will get experience of both types of modes their knowledge will enrich. Reaching the experts and content material available online our students will gain advanced skills that will make them strong eligible candidates of good jobs. These exposures will surely overcome the limits in the syllabus designing or methodologies.
- Similarly another problem in our education system is that it is failing to develop in students right value system and love toward Indian culture and tradition as it is adopting itself in modern technologies but blended learning gives equal importance to traditional mode and classroom teaching and thus can give students essence of Indian value system.

Implementation of Blended Learning in India

Blended Learning is an effective blend of online and face-to-face mode in teaching-learning. The Blended Learning Implementation notification of UGC states the blended learning mode could be used for all the courses except of

SWAYAM courses which are purely in online modes. The curricula across the country are now credit-based.

Weeks for credit hours generally range from 12 to 15. e.g. IIT considers 12 weeks per credit, IIT considers 13 weeks per credit, whereas UGC considers 15 weeks per credit. Total credits per Programme change as per UGC Guidelines and approvals to programmes by Academic Councils of the Universities. e.g. In a particular University, M.Com. programme may be offered of 80 credits whereas M.Sc. programme may be of 96 credits. Considering a theoretical programme, where 15 hours classroom time is allotted per 1-credit (1-credit hour * 15 weeks), total classroom hours are $4 * 15 = 60$ per course. Total number of hours is 240 for these 16 credits are being taught in face-to-face mode.

UGC is offering a choice of teaching these 240 hours in a Blended Mode, i.e. instead of attending 240 classroom hours, students can spend upto a certain hours in online interactions and be present in F2F mode (face-to-face) for the remaining hours. Additional student work (self-study, revision, assignments, projects, assessment preparations, etc.) are of 240 hours which remain unchanged.

Blended learning opportunity is being exploited in the following manners by each of the course teachers:

1. Teacher A teaching course 201 is teaching 50% modules in online mode. There are 4 modules in this course, so 2 modules are dealt in online mode.
2. Teacher B teaching course 202 (Research Methodology) is teaching all 4 modules in Blended Mode allowing students to access online resources, complete activities in online mode for about 30 hours and be in the classroom for total 30 hours. These 30 classroom hours are being utilised for several activities, trouble-shooting, solving queries on the read or viewed contents, problem-solving, etc.
3. Teacher C teaching course 203 (eLearning) has allowed students to join a MOOC on eLearning. While students are completing this external MOOC, teacher C has also joined this MOOC to keep track of teaching-learning happening in the MOOC. S/he is conducting a few activities, confirming students' regular access to MOOC and completion of assignments, discussing and allotting group activities in the class as well in online mode. Students are submitting assignments of the teacher C simultaneously in online mode and attending classes on the campus only for 25% of the total hours, i.e. there are only 15 campus hours for this course.
4. Teacher D is dealing with OER development course (204). S/he needed to assign a separate weightage of hours for every module. Last 2 modules require more lab hours where students themselves are developing the entire OER using the studio of the institute. The previous 2 modules aim at their own explorations of free tools and they can work more from home. As per teacher's plan, students spend 80% time in online mode for module 1 and 2, whereas 40% time online and 60% time in the classroom is spent for module 3 and 4. Average 30% of the total time is spent in the classroom for this course.

However, all teachers A, B, C and D have submitted this proposed weightage to the institution for information.

OER: NMEICT, NPTEL, ePG, NDL

Open educational resources (OER) are defined by the United Nations as any type of educational materials in the public domain or introduced with an open license. Critical to

supporting open knowledge and open access, OER are learning materials supporting legal and free (a) copying, (b) usage, (c) adaptation and (d) sharing.

These resources can be anything from textbooks to syllabi, lecture notes, tests, videos or animations. OER offer the opportunity to provide access, quality guide to blended learning and cost-effectiveness in education delivery and have led to significant dialogue around policies for knowledge sharing and capacity building in the social and economic global world.

While OER are not a necessity for successful blended learning, these two education innovations combine to make a powerful contribution to high-quality, accessible and affordable education. Using well-designed, available OER can free up resources that can then be used to design and deliver BL opportunities.

Creative Commons is a global, collaborative movement for the sharing of free, international, easy-to-use materials. The goal of this international community is to enable greater access and equality; it supports education for everyone. Those who created and now support and use Creative Commons believe in sharing and collaborating on materials such that the full potential of the Web will be realised; most importantly, this will also be true for the individuals who will use it. Creative Commons provides a set of licenses for anyone to use while releasing any teaching or learning resources as OER.

The licences also provide a technical solution to tag the resources with a machine-readable language to identify them as OER. This allows potential users to filter their searches by "usage rights" in Google Advanced Search. There are many platforms through which we can find and share OER.

MOOCs and SWAYAM

MOOCs

MOOC stands for massive open online course (MOOC) which is an online education system providing various courses, which aims at large-scale interactive participation and open access via web. MOOC aims to provide real time education online with the help of various features like videos, study materials, quizzes and online exams and also tries to make it more efficient than the real time education in class rooms by removing time constraints and location constraints. MOOCs also provide interactive discussion sessions for the user through interactive discussion forums that help to build a community for the students and professors.

SWAYAM

SWAYAM is a programme initiated by Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality. The objective of this effort is to take the best teaching learning resources to all, including the most disadvantaged.

Platforms: Learning and Evaluation: LMS

LMSs are web applications, meaning that they run on a server and are accessed by using a web browser. LMSs give educators tools to create a course web site and provide access control so only enrolled students can view it. LMSs also offer a wide variety of tools that can make your course more effective. They provide an easy way to upload and share materials, hold online discussions and chats, give quizzes and surveys, gather and review assignments, and record grades. LMS can be installed in cloud & all faculty can upload to share all the particular class related documents, video, MP3 etc.

Other Innovative Initiatives

SimLab+

SimLab is a process-oriented multidisciplinary simulation environment to accurately analyze the performance of complex assemblies. SimLab is designed as a powerful 3D visualization and communication platform with a rich set of built-in workbenches. As general multi-purpose 3D software Solution it helps users to simplify complex work-flow through simple GUI and easy-to-figure tools. Sim lab provides AR/VR headset and its supports android/win/ios. SimLab's VR Viewer is a stand-alone application that can view, edit and share interactive VR experiences.

Virtual Lab

Virtual labs provide remote-access to Labs in all major disciplines of Science and Engineering. These Virtual Labs can cater to students at the UG & PG levels as well as to research scholars. Use of these labs can cut down the effective cost by 24x7uses and providing better reliability, repeatability and access. It helps student to conduct experiments by arousing their curiosity and learning basic and advanced concepts through remote experimentation but with more safety, security. Can be considered as a part of Learning Management System where the students can avail the various tools for learning, including additional web-resources, video-lectures, animated demonstrations and self-evaluation.

Robotics

Robotics is a branch of engineering and science that includes electronics engineering, mechanical engineering and computer science and so on. This branch deals with the design, construction, and use to control robots, sensory feedback and information processing. The use of robots is rapidly growing and becoming more common across workplaces, homes, and educational institutions. Institutions have also started using teaching robots, to impart knowledge to their students. These robots can help in delivering lessons in Science, Technology, Engineering, and Mathematics concepts that are essential in the educational curriculum.

The use of robotics in learning is ideal for interaction in classrooms as it can improve and encourages collaboration among students. Playing (and learning) with robots also offer additional benefits for students with disabilities. Students can undertake challenging tasks by designing, creating and programming their own robots.

FOSSEE

FOSSEE (Free/Libre and Open Source Software for Education) project promotes the use of educational tools in academia and research. The FOSSEE project is part of the National Mission on Education through Information and Communication Technology (NMEICT), Ministry of Education, Government of India. Below is the list of some of the projects which are promoted by FOSSEE.

E-sim: eSim is an open source EDA tool for circuit design, simulation, analysis and PCB design.

Osadag: Osdag is a cross-platform open-source software for the design of steel structures, using the Indian Standard.

DWSIM: DWSIM allows chemical engineering students and practicing engineers to model process plants by using rigorous thermodynamic and unit operations models.

PLC: Provides training and skilling for PLCs.

SBHS: The single board heater system (SBHS) is a lab-in-a-box setup useful for teaching and learning control systems.

R: R is a language and environment for statistical computing

and graphics.

QGIS: QGIS (Quantum GIS) is a desktop Geographic Information System (GIS) application.

PYTHON: Easy to read and learn, useful for scientific computing.

The prolonged periods of educational institutions may compel us to think of more extensive use of technology to grant our students some justice by introducing blended learning for them ~ a hybrid of in-person lessons and distance learning. It will reduce their physical presence in favour of video conferencing and create smaller groups that allow appropriate social distancing. In a blended learning model, in-person and online components can be synthesised in any proportion to suit a student's personal learning style and adapt to family situations and levels of access to the technology.

With blended learning, the content of education changes as much as the mode of communication. The teacher is there to provide guidance and act as discussion moderator. He can give direction and feedback to students' projects, but not as the only source of knowledge. Also, the institution is not the only place where students can learn. Educating themselves is a continuous process that follows them everywhere.

The use of relevant pedagogy for online education in the blended learning mode will depend on the exposure to information and communication technology (ICT) for both learners and educators. Online platforms like Microsoft Team, Google Classroom, Canvas and Blackboard allow teachers to create educational courses, training, and skill development programmes. They support the sharing of a variety of contents – Word, PDF, Excel, audio, video etc. Virtual classroom platforms may be used increasingly.

Conclusion

A blended learning mode provides ultimate flexibility in many aspects. It can be applied to any program which holds on to the values of traditional learning and incorporates digital media with that. It is a lot more effective and likeable than anything that has been ever before. Only transition from classroom to computer or vice methods and techniques, available resources indicate that blended learning mode “best of all worlds”. It is the best because it helps all learning requirements and styles through a variety of mediums and techniques. Globally, blended learning is also one of the most adopted learning tools.

Undoubtedly there are some key advantages or take-aways of the ABC is in favor young mind that can blend education as they like. A student can change sp course; choose own subjects and courses along with degrees and diplomas; courses can be lined up according to strength of institutions and professors; utilize online mode which offers a round the clock facility eliminating the time limitations. It provides ultimate flexibility in many aspects. It can be applied to any program which holds on to the values of traditional learning and incorporates digital media with that. It is a lot more effective and likeable than anything Students, academicians, policy makers etc. appreciate the needed freedom/flexibility. Only a well-crafted blended solution can provide a seamless transition from classroom to computer or vice-versa. Though there are many teaching and techniques, available resources indicate that blended learning mode “best of all worlds”. It is the best because it helps all learning requirements and through a variety of mediums and techniques. Recently many learning platforms have adopted blended learning and is also one of the most adopted learning ways of the ABC is in favour of the young mind who can blend education as they like. A

student can change specializations course; choose own subjects and courses along with degrees and diplomas; courses can be lined up according to strength of institutions and professors. And most of all, it can be applied to any program which holds on to the values of traditional learning and incorporates digital media with that. It is a lot more effective and likeable than anything. Students, academicians, policy makers etc. appreciate the blended solution can provide a seamless.

Though there are many teaching and techniques, available resources indicate that blended learning mode is the Universities and parent bodies need to ensure checking essential requirements to begin with and them should monitor processes to ensure successful implementation of blended learning. Blended learning mode is to be used nation-wide to help learners develop 21st century skills along with the effective learning and skill development related to the subject-domains. Blended learning should be carefully implemented and should not be replacing classroom time as a privilege. Every institute should strive to be a model institute to demonstrate a successful implementation of blended learning in the higher education of our country.

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