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PREFACE

At the present time technologies in the fields of education, science and technology play a significant role in our daily life. Appreciation to all the dedicated researchers, now we can live in suitable surroundings by using M-learning, cloud databases or even robots. Researchers from all over the world devoted to IT, consumer and control fields and these research results have immense hard work in many different fields. IT, engineering and control researches engage the use of electronic devices to control applications or tools in different fields such as industrialized, biomedical and supremacy applications. The information technology, consumer and control are like a human brain in the machine, it will give the correct direction for computer or biomedical applications or other devices. Many people are benefit from the development of technology, for example, doctors can use CT, MRI and 3D print to look at their patients; entrepreneurs can grasp video conferences with their workers. We consider that all the papers available in this unique issue will have immense persuade on the engineering, communication and technology fields in the education. Approximately 200 papers from all over the South India have been rigorously reviewed before being accepted for this special issue. According to their topic and their worth by professionals, twenty four of the best papers are incorporated in the issue.

We thank all of the authors who contribute to this special concern.

Dr. Shahana A M, Editor-in-Chief
Dr. A. Sivakumar and Mr. V. Parthiban, Editors

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HYRBRID TEACHING: TEACHING STRATEGIES TO OPTIMIZE LEARNING SPACES

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ABSTRACT

The arrival of new information and communication technology in education has created a drastic change and altered common approaches in teaching and learning. Due to this covid pandemic situation, the present teaching and learning now focus more on the learner and his needs. The learner expects more interaction with the learning materials, with their peers and resource persons, and studying independently at their own pace. Hybrid learning is not a mere combination of face-to-face learning and online learning but also a combination of various methodologies. In this learning, lectures can be replaced by interactive activities under the supervision of the instructor. Due to it the teacher has more time to interact it the individual students and enhance the quality of education with the help of technology. It increases more convenience and flexibility, improves learning outcomes, and improves the efficiency of classroom use. The success of hybrid learning requires a reconceptualization of teaching, learning, and assessing. To transform the traditional learning environment into hybrid learning, the teacher/instructor must carefully examine the learning objectives and develop the methodology and assessment process. This new learning methodology will meet the challenges of expansion and cater to the needs of students. It helps to adopt

new technologies and explore new paths to reach the goal of quality educational opportunities.

Keywords: Hybrid learning, assessment, blended learning, communication technology

INTRODUCTION

Every learner is unique. Every teacher is unique. And every learner-teacher relationship is unique- Brown, 1987 Hybrid instruction is an innovative educational model, sometimes also called blended learning. It is defined as "the thoughtful integration of classroom face-to-face learning experiences with online learning experiences". This learning strategy combines live instruction with web-based delivery and allows instructors to make better use of classroom time, which is at an increasing premium these days (Tatiana Usova,2011). Hybrid learning environment gives students the privilege to understand and to explore the real world issues through authentic learning experiences, facilitated in an online learning environment (Ellis, 2001). It combines online with face-to-face learning. The goal of hybrid learning is to provide the most efficient instruction experience by combining delivery modalities (Kumar,2012). Hybrid learning terminates the conventional start –to –end notion of acquiring education, and in turn the concept of lifelong learning endeavor that can be acquired throughout the persons individual life span, but courses should by through the learning stem (Alnajdi,S.M.2014). The role of technology in learning requires a delicately balanced blend of traditional and innovative pedagogical initiatives where learner's presence dictates and outcomes.

LEARNING AND HYBRID LEARNING SPACES

The COVID-19 pandemic radically disrupted every aspect of life, including education, and left educational institutions clamoring for systems and structures that ensure a continuation of learning for all students. Remote learning experiences implemented by schools and universities during the pandemic revealed challenges, including equity, access, and capacity. The educational models of teaching during pandemic situation are as

follows.

Partial opening- Partial opening of the schools allow specific students to attend the traditional school environment and many students attend their class through virtual mode of learning.

Synchronous and separated - Some educational institutions are conducting face-to-face and online instruction at the same time. Some students are in-person while others are joining the same class remotely.

Rotational - Other schools are rotating students on and off campus throughout the week.

Hybrid learning is a mix of all models. It create a learner-centered experience that is profoundly personalized, relevant and engaging. It incorporates peer tutoring, self-assessment and collaboration among instructors and peers. It is students centered method. With digital engagement it can enhance and accelerate learning by providing student-centered approaches to meet diverse learner's needs. Hybrid learning spaces can take account of the interactions between learner, teacher and researcher to extend how learning is optimized. Teacher can utilize variety of strategies as follows

Small group discussion- In this students are break students into small groups to solve problems, discuss concepts, or debate topics. Students joining remotely can work with students attending in-person to engage in the small group discussions.

Hands on activities- It helps the students to practice or visualize the concepts.

Demonstrating the concepts- Students should be provided with the enough time to process and practice concepts individually.

Reflecting- In this students reflect on a question, and not allowing anyone to raise their hand to answer the question until everyone (both in-person and remote students) is showing a "thumbs-up.

Free to collaborate - Asking students to change their status to red if they are still working or they are having trouble with a

concept and to change their status to green when they are finished working or feel confident with the concept. Remote students can change their statuses to busy for red and available for green; in-person students can use a notecard with a red dot on one side and a green dot on the other side and flip to the appropriate selection.

Online assessment- teacher can evaluate the students' performance with the help pf Creating an @forms or Polly poll, , or a Kahoot or Quizlet activity and ask all students to participate

CONCEPT OF HYBRID LEARNING

The term hybrid learning has been now commonly used, particularly in corporate and higher education settings. Graham, 2005 have been identified four main principles of the hybrid learning methodology so far:

- a thoughtful integration of face-to-face and fully online instructional components;
- innovative use of technology;
- reconceptualization of the learning paradigm; and
- Sustained assessment and evaluation of hybrid learning (Klimova,B.F.,& Kacetl,J. 2015).

The principle involved in the hybrid learning are

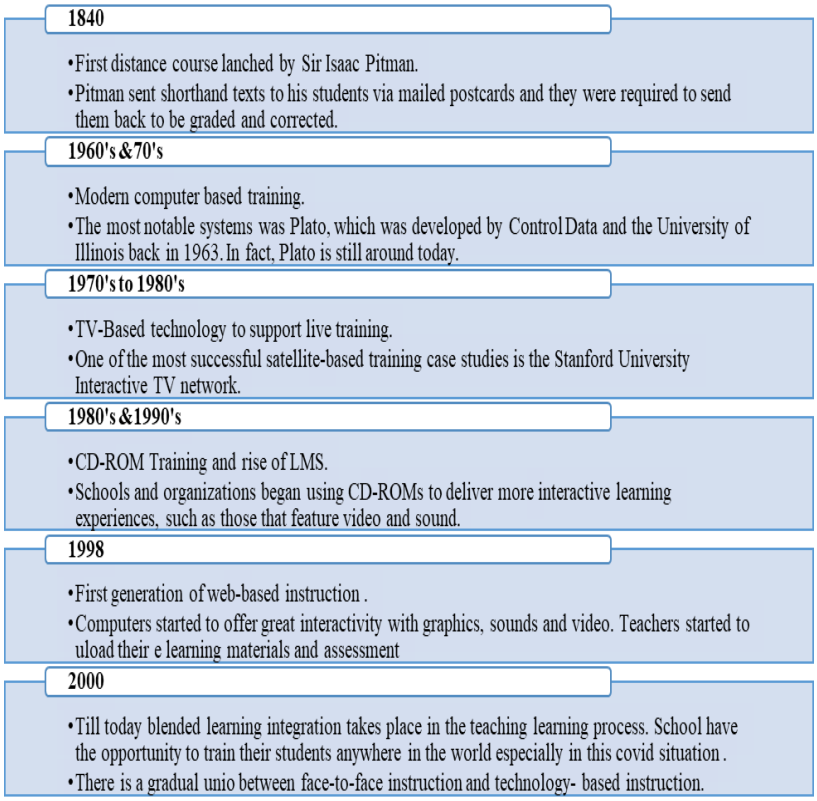
It attempts to enrich the benefits of both environments and successfully meet the diverse students' needs and preferences.

Any technology should be applied in a pedagogically appropriate way and used for creating and maintaining socially situated and highly interactive learning (Vaughan, 2007).

It tries to incorporate new emerging pedagogies and learning theories such as constructivism or activity theory with the new challenging roles of students and teachers in the process of acquiring knowledge and its understanding.

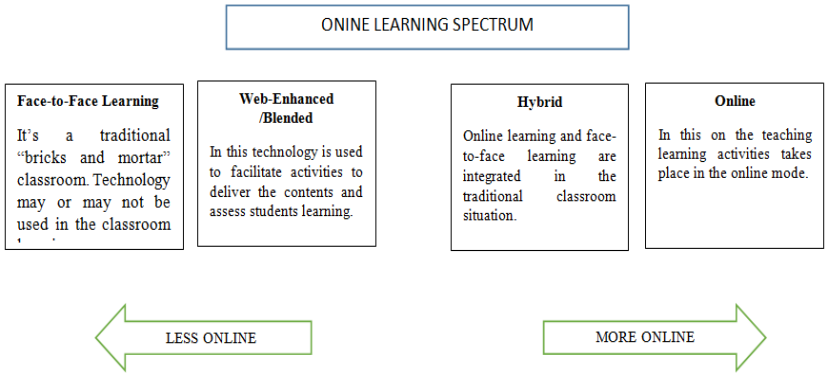
The hybrid learning methodology should ensure the quality and effectiveness of education.

DEVELOPMENT OF HYBRID LEARNING



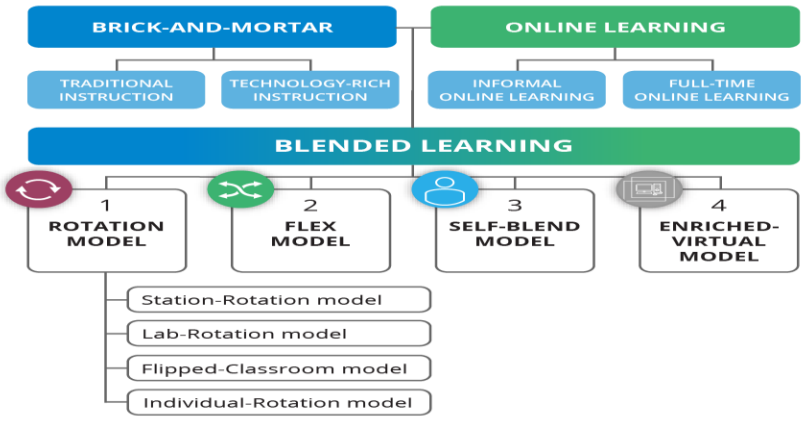
HYBRID LEARNING MODEL

Hybrid learning model vary based on the content and teacher expectations for the subject. , hybrid and blended are but two terms in what we might think of as a larger "online learning spectrum"



HYBRID LEARNING IN TEACHING

The current paradigm sees teaching and learning as social processes where the students are active co-constructors of knowledge with their teachers. The teacher is becoming a facilitator, mediator, mentor or a coach. Hybrid learning is a teaching method where teachers instruct in-person and remote students at the same time. In hybrid learning models, asynchronous teaching methods can be used to supplement synchronous, face-to-face instruction. It merge the online learning and in person learning following picture is the example of hybrid learning model.



STEPS INVOLVED IN HYBRID TEACHING LEARNING

The following are the steps involved in the hybrid class planning for the subject

Step 1: Start at the Foundation- Each course has a goals and

objectives. It contains picture of the course which will help to drive the course entire development process.

Step 2: Plan Assessments- It is the second step in the hybrid teaching learning process. Teacher should plan both the major, summative assessments (projects, portfolios, etc.), as well as smaller, formative ones (homework, discussions, etc.).

Step 3: Create a Course Map- Teacher must create a chart (course map, table, etc.) that sequences what the units/modules will be, the order they should go in, and what resources and activities you plan to provide along the way within each module.

Step 4: Plan Activities - Identify activities that capitalize on the strengths of each type of environment (online or face-to face), and include those in your course map.

Step 5: Create/Find Content Developing online - content is the most time-consuming aspect of designing a hybrid course. Plan to carve out the majority of your course development time on this step.

Step 6: Ensure for Quality- At this point, teacher should have an entire "draft" of the course. Now it needs some editing and refinement. Teacher should go online and find some quality checklists that apply specifically to hybrid courses and use them to "grade" the course. She must communicate with the students and ask them to give you feedback on your description of the course. Teacher can even do pilot study about her course with some willing students or fellow faculty members, and ask them to provide with written feedback which will help to upgrade the course.

BENEFITS OF HYBRID LEARNING

The goal of hybrid learning is to combine the two formats to create a singular learning experience without any weak spots. The benefits of hybrid learning are:

A flexible learning experience- It gives a flexible learning schedule, flexibility in teaching modes, flexibility in how students engage with their learning materials, and flexibility in collaboration and communication between peers and their

instructor. For students who aren't able to attend classes' in-person, the hybrid learning environment allows them to learn remotely from home.

Synchronous communication opportunities-Few learning experiences match the immediacy and intimacy of in-person academic discussions. The face-to-face aspect of hybrid learning benefits from the opportunity for real-time engagement between peers.

The freedom of independent academic exploration- Online learning comes with many freedoms. Those students who excel at self-management and independent learning will thrive under these freedoms: the freedom to learn from the location of their choosing, the freedom to revisit materials any number of times at any pace, and the freedom to develop an in-depth asynchronous discourse with your peers.

More efficient use of resources- It will help to plan the teaching resource for each lesson and increase the use of online resource in the classroom.

Personalized Learning: The hybrid approach to learning makes it possible for every student to learn at a pace that is comfortable for them, thereby increasing retention. Students can participate in a variety of synchronous and asynchronous learning activities that are aligned to their learning styles, thereby helping them gain a deeper understanding of the subject matter. Due to a smaller group, teacher – student interactions can be much more personalized and effective.

Increased flexibility: A hybrid approach gives control to the students over the time, place and pace of learning. This flexibility often translates to increased attendance and participation in the classes.

Sophisticated assessments and reporting: Comprehensive student evaluations, peer benchmarking facilities and granular reporting are all made possible through the use of technology in the Hybrid learning model.

Instant Feedback: Customized assessments, participation in live lectures, live chats with teachers are ways of providing immediate feedback to students that is very valuable for learning.

Use of technology to increase scope of personalization and engagement: Use of Artificial Intelligence will help to customize learning to suit different learning styles that eventually leads to better learning outcomes. Gamification, self-paced learning, short videos with inter-leaved exercises are different ways in which technology can help make the hybrid learning environment more productive.

CONCLUSION

Hybrid learning can be employed in the teaching learning process which contribute to pedagogy and supports more interactive strategies. It encourages collaborative learning where students and educators work together in their own pace. Teachers and students both are able to get immediate feedback that in turns is favourable for teaching learning process. Face to face interaction is highly motivating for both the teachers and students and it gives a human touch to the process. Student interaction with course content- traditional mode of teaching and the school campus provides student time to interact directly with their course content through printing material and ICT mediated learning provides them indirect interaction with their course content in a versatile and diverse interesting way. The videos provide required realism to the content and sharing on blogs and visiting e-books provide new and updated perspectives to the content. Peer group interaction- inside the school campus students learns by formal means and they also learn informally when they interact with their peer groups.

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